Test Specifications Distributor-Type Fuel Injection Pump

WPP 001/4 FIA 3,5b
4. Edition
En

Test-Soil-ISO 4113

VA 4/110 H 1250 CL 136-6
0 460 314 034

supersedes 11.79
company Fiat
engine 8045-04270

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers
Test Intructions and Test Equipment VDT WPP 161/4 B
Pre-setting see reverse side

Pre stroke setting 0,5 mm ± 0,02 (± 0,04)
Setting of the pointer at a stroke af 1,0 mm in relation to outlet "A".

1. Settings

	rev/min	Settings		Charge air press kp/cm²	Difference in delivery cm³
1 1 Timing device travel	1000	4,7-5,5	mm		
1 2 Supply pump pressure	1000	5,3-5,8	kp/cm²		
1 3 Full load delivery without charge air pressure	1200	70,0-73,0	cm³/1000 strokes		2,5
Full load delivery with charge air pressure	--	--	cm³/1000 strokes		
1 4 Idle speed regulation	300	22,0-28,0	cm³/1000 strokes		3,0
1 5 Start	100	mind. 110,0	cm³/1000 strokes		
1 6 Full load speed regulation	1400	26,0-34,0	cm³/1000 strokes		

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	700	1000	1250
	mm	1,5-2,5(1,2-2,8)	(5,0-6,1)	6,2-6,7(5,9-7,0)
2 2 Supply pump	rev/min	200	1000	1100-1250
	kp/cm²	1,5-2,0(1,3-2,2)	(5,1-6,0)	6,1-6,8(5,9-7,0)
Overflow delivery	rev/min	500		1250
	cm³/10 s	55-100(40-110)		55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm³/1000 strokes		Charge air pressure kp/cm²
End stop	Full	1460-1510	0		
		(1440-1530)			
		1400		(25,0-35,0)	
		1200		(69,0-74,0)	
		800	70,5-71,5	(70,0-72,0)	
		500	62,0-65,0	(61,0-66,0)	
	Stop	1250	0		
Idle stop	Full	400-450	0		
		(380-470)			
		300		(21,0-29,0)	
End stop	Start	100	mind. 110,0		
		110-230			

10.84

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Angle to the stop-plate	Pre-setting dimensions
Pump α = 25 ± 4° β = 35 ± 8° γ = 30 - 8° δ = 60 + 8°	Pump Dimension IV = 3,60 mm Dimension V = 24,65 mm

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 REN 2,0 b
4. Edition

En

VE 4/9 F 2250 R 41
0 460 494 027

Overflow temperature 45° C

supersedes 5.84
company: Renault
engine: 852

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting --- mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1400	4,4-4,8	mm		
1.2 Supply-pump pressure	1400	4,9-5,5	bar (kgf/cm²)		
1.3 Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
Full-load delivery without charge-air pressure	1400	38,5-39,5	cm³/1000 strokes		2,5 (3,0)
1.4 Idle regulation	400	7,5-11,5	cm³/1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2400	17,0-23,0	cm³/1000 strokes		
1.6 Start	100	min. 52,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	1400	--			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1400	2000
	mm	2,6-3,4 (2,3-3,7)	(3,9-5,3)	6,7-7,5 (6,4-7,8)
2.2 Supply pump	n = rev/min	1000		2000
	bar (kgf/cm²)	3,9-4,5		6,5-7,1
Overflow delivery	n = rev/min	500		2250
	cm³/10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2550	max. 2,0	
	2400	(16,0-24,0)	
	2200	31,4-33,4(30,1-34,7)	
	2100	32,7-34,7(31,4-35,9)	
	1400	(36,7-41,2)	
	1000	35,8-38,8(34,3-40,3)	
switch-off	2250	0	
Idle stop	650	max. 5,0	
	400	(5,5-13,5)	
End stop	320	min. 45,0	
	430	max. 45,0	

2.4 Solenoid
max. cut-in voltage xx min. 10.0 V
test voltage ~~xxxxxxxxx~~ rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 3,5
A XK	20,1-22,1
B XL	9,5-13,3

Observations

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Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 VWW 1,6 b 1

3. Edition

En

VE 4/9 F 2400 R 66

0 460 494 048

Overflow temperature 45° C

supersedes 1.83
company: VWW
engine: 1,6 L

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/.

Pre-stroke setting - mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	2,9-3,3	mm		
1.2 Supply-pump pressure	1500	4,9-5,5	bar (kgf/cm²)		
1.3 Full-load delivery with charge-air pressure			cm³/1000 strokes		
Full-load delivery without charge-air pressure	1500	31,5-32,5	cm³/1000 strokes		2,5(3,0)
1.4 Idle regulation	415	6,6-10,0	cm³/1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2600	11,0-17,0	cm³/1000 strokes		
1.6 Start	100	min. 35,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	-				

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1500	2400
	mm	1,3-2,1 (1,0-2,4)	(2,4-3,8)	6,1-6,9 (5,8-7,2)
2.2 Supply pump	n = rev/min	400		2400
	bar (kgf/cm²)	2,1-2,7		7,0-7,6
Overflow delivery	n = rev/min	500		2400
	cm³/10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2700	2,5-9,5 (2,0-10,0)	
	2600	(10,0-18,0)	
	2400	27,0-29,0(25,7-30,3)	
	1500	(29,7-34,3)	
	600	20,5-23,5(18,0-26,0)	
switch-off elektr.	400	0	
Idle stop	1200	max. 3,0	
	600	max. 6,0	
	415	(4,0-12,0)	
End stop	400	min. 17,0	
	500	max. 22,5	

2.4 Solenoid — max. cut-in voltage xx min. 10 V
test voltage xxxxxxxxrated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,3-1,5
SVS	max. 2,5
FH*)	1,8 - 2,4
A X K	18,4-20,4
B X L	9,1-12,9

Observations

*operating stroke (KSB)

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Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 REN 2,0 d

4. Edition

En

VE 4/9 F 2200 R 69

0 460 494 055

Overflow temperature 45° C

supersedes 01.84
company: Renault
engine: J 8 S - 702

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting - mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1400	4,0-4,4	mm	0,735	
1.2 Supply-pump pressure	1400	5,1-5,7	bar (kgf/cm²)	0,735	
1.3 Full-load delivery with charge-air pressure	1400	49,5-50,5	cm³/1000 strokes	0,735	2,5 (3,0)
Full-load delivery without charge-air pressure	600	35,0-36,0	cm³/1000 strokes	0	
1.4 Idle regulation	350	9,0-13,0	cm³/1000 strokes	0	2,5 (3,0)
1.5 Full-speed regulation	2400	23,0-29,0	cm³/1000 strokes	0,735	
1.6 Start	100	min. 60,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1400	1800	2000
	mm	1,9-2,7(1,6-3,0)	(3,5-4,9)	5,7-6,5(5,4-6,8)	6,2-7,0(5,9-7,3)
2.2 Supply pump	n = rev/min	400		1800	
	bar (kgf/cm²)	1,9-2,5		6,3-6,9	
Overflow delivery	n = rev/min	500			2200
	cm³/10 s	55-138 (40-153)			55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2700	max. 2,0	0,735
	2500	max. 17,5	0,735
	2400	(22,0-30,0)	0,735
	2000	43,0-45,0(41,7-46,2)	0,735
	1400	(47,7-52,2)	0,735
	1000	45,0-48,0(43,5-49,5)	0,735
	700*	40,0-41,0(37,5-43,5=	0,2
	600	(32,5-38,5)	0
switch-off	2200		
Idle stop	480	max. 2,0	
	375	4,0-8,0 (2,0-10,0)	
	350	(7,0-15,0)	
End stop	180	min. 40	
	300	max. 40	

2.4 Solenoid — max. cut-in voltage xxxx min. 10,0 V; test voltage xxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max.5,3
A XK	20,2-22,2
B XL	9,1-12,4

Observations

* Manifold-pressure compensator stroke = 4,5 mm
Correction at the adjusting nut. (46)

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10.84

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⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 BMW 2,4 b

1. Edition

En

VE 6/10 F 2400 R 118 **Overflow temperature 45° C**

0 460 406 025

DHK 1 688 901 022, Prüfdruckl. 1 680 750 073

supersedes -
company: BMW - USA, Ford-calif.
engine:

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting - mm

1. Settings

	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1 1 Timing device travel	1500	6,5 - 6,9	mm	1,050	
1 2 Supply-pump pressure	1500	5,9 - 6,5	bar (kgf/cm²)	1,050	
1 3 Full-load delivery with charge-air pressure	1500	39,5 - 40,5	cm³/1000 strokes	1,050	max. 3,0
Full-load delivery without charge-air pressure	500	21,5 - 22,5	cm³/1000 strokes	0	max. 3,0
1 4 Idle regulation	400 **	6,0 -10,0	cm³/1000 strokes	0	
1 5 Full-speed regulation	2600	17,0 - 23,0	cm³/1000 strokes	1,050	max. 3,0
1 6 Start	250 **	35,0 - 37,0	cm³/1000 strokes	0	
1 7 Load-dependent port-closing	-				

2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min	400	1500	1500 **	2000
LDA = 1,050bar	mm	3,8-4,6 (3,5-4,9)	(6,0-7,4)	0	8,2-9,0 (7,9-9,3)
2 2 Supply pump	n = rev/min	500			2300
LDA = 1,050bar	bar (kgf/cm²)	4,4 - 5,0			7,2 - 7,8
Overflow delivery	n = rev/min				2400
	cm³/10 s				55-138 (40-153)

2 3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	2700	7,0-13,0	(6,0 - 14,0)	1,050
	2600		(16,0- 24,0)	1,050
	2400	39,5-41,5	(38,2-42,8)	1,050
	1500		(37,7-42,3)	1,050
	* 750	31,5-32,5	(29,7-34,3)	0,5
	500 **		(19,7-24,3)	0
switch-off				
Idle stop	450 **	max. 3,0		
	400 **		(4,0 - 12,0)	
Exhaust gas recirculation driver	850 ***	16,0-18,0		
Start	100 **	27,0-37,0		
Inspection point	400 **	28,0-38,0		
Limit stop	480 **	19,2-23,8		

2 4 Solenoid — max. cut-in voltage xxx min. 10 V; test voltage xxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2 - 3,4
KF	6,3 - 6,6
MS	1,4 - 1,6
SVS	3,0
XK	20,2 - 22,2
XL	9,5 - 12,8
A	
B	

Observations

Please note instructions on sheet 2.

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* Manifold-pressure compensator stroke = 7,5 mm
** Supply 12 V to the solenoid valve
*** Setting point for the exhaust gas recirculation

Pull the control lever in the direction of full load, until the gauge fits over the driver and stay on the housing cover.
Measure the fuel delivery.

(rated voltage 12 V)

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 BMW 2,4 C
1. Edition

En

Test:ISO 4113

VE 6/10 F 2400 R 118-1 **Overflow temperature 45° C**

0 460 406 041

DHK 1 688 901 022, Prüfdruckl. 1 680 750 073

supersedes -
company BMW- USA .Ford
engine: M 21 D 24

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting - mm

1. Settings

	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	6,5 - 6,9	mm	1,050	
1.2 Supply-pump pressure	1500	5,9 - 6,5	bar (kgf/cm²)	1,050	
1.3 Full-load delivery with charge-air pressure	1500	39,5-40,5	cm³/1000 strokes	1,050	max. 3,0
Full-load delivery without charge-air pressure	500	21,5-22,5	cm³/1000 strokes	0	max. 3,0
1.4 Idle regulation	400 **	6,0-10,0	cm³/1000 strokes	0	
1.5 Full-speed regulation	2600	17,0 - 23,0	cm³/1000 strokes	1,050	max. 3,0
1.6 Start	250 **	35,0 - 37,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-				

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	400	1500	1500**	2000
LDA = 1,050 bar	mm	3,8-4,6 (3,5-4,9)	(6,0-7,4)	0	8,2-9,0 (7,9-9,3)
2.2 Supply pump	n = rev/min	500			2300
LDA = 1,050 bar	bar (kgf/cm²)	4,4-5,0			7,2 - 7,8
Overflow delivery	n = rev/min				2400
	cm³/10 s				55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	2700	7,0 - 13,0	(6,0 - 14,0)	1,050
	2600		(16,0- 24,0)	1,050
	2400	39,5- 41,5	(38,2-42,8)	1,050
	1500		(37,7-42,3)	1,050
	* 750	31,5-32,5	(29,7-34,9)	0,5
	500 **		(19,7-24,3)	0
switch-off				
Idle stop				
Exhaust gas recirculation driver	450 **	max. 3,0		
	400 **		(4,0 - 12,0)	
	850 ***	16,0-18,0		
Start	100 **	27,0-37,0		
Inspection point	400 **	28,0-39,0		
Limit stop	480 **	19,2-23,8		

2.4 Solenoid — max. cut-in voltage xxx min. 10 V; test voltage ~~xxxxxxxx~~ rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2 - 3,4
KF	6,3 - 6,6
MS	1,4 - 1,6
SVS	3,0
A	
B	

Observations

Please note instructions on sheet 2.

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A8

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* Manifold-pressure compensator stroke = 7,5 mm
** Supply 12 V to the solenoid valve
*** Setting point for the exhaust gas recirculation

Pull the control lever in the direction of full load, until the gauge fits over the driver and stay on the housing cover.
Measure the fuel delivery.

(rated voltage 12 V)

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⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 3,9 a

2. Edition

En

VE 4/12 F 1250 R 123 **Overflow temperature 45° C**

supersedes 03.84
company: Cummins
engine: 4 T.390

0 460 424 006

DHK: 1 688 901 016 / 207+3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

1. Settings	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1 1 Timing device travel	900	2,3- 2,7	mm		
1 2 Supply-pump pressure	900	4,5- 5,1	bar (kgf/cm²)		
1 3 Full-load delivery with charge-air pressure	-		cm³/1000 strokes		
Full-load delivery without charge-air pressure	1100	85,0-86,0	cm³/1000 strokes		4,0(4,5)
1 4 Idle regulation	375	18,5-24,5	cm³/1000 strokes		3,5(4,5)
1 5 Full-speed regulation	1340	24,5-32,5	cm³/1000 strokes		
1 6 Start	100	min. 97,0	cm³/1000 strokes		
1 7 Load-dependent port-closing	-				

2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min	750	900	1100	1250
	mm	1,1-1,9(0,8-2,2)	(1,8-3,2)	3,2-4,0(2,9-4,3)	3,7-4,5(3,4-4,8
2 2 Supply pump	n = rev/min	400	750	1100	
	bar (kgf/cm²)	2,3-2,9	3,8-4,4	5,3-5,9	
Overflow delivery	n = rev/min	600		1250	
	cm³/10 s	55-138(40-153)		55-138(40-153)	

2 3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	1400	max. 1,0		
	1340		(23,5-33,5)	
	1250	80,0-83,0	(78,5-84,5)	
	1100		(82,5-88,5)	
	750	88,5-92,5	(86,7-94,3)	
	600	88,5-92,5	(86,7-94,3)	
switch-off				
Idle stop	450	max. 1,5		
	375		(16,5-26,5)	
	300	40,3-46,3	(38,3-48,3)	
	130	min. 97,0		
End stop	200	max. 85,0		

2 4 Solenoid

max. cut-in voltage xx min. 10 V

test voltage xxxxxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,1-5,4
MS	1,4-1,6
SVS	4,2
A	
B	

Observations

Stop check electric shutoff device at 375 min/1.

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10.84

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Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 REN 2,0 k
2. Edition

En 02.84

VE 4/9 F 2200 R 153 Overflow temperature 45° C

0 460 494 141

supersedes company: Renault engine: J8S-709

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1400	4,0-4,4	mm	0,8	
1.2 Supply-pump pressure	1400	5,1-5,7	bar (kgf/cm²)	0,8	
1.3 Full-load delivery with charge-air pressure	1400	49,5-50,5	cm³/1000 strokes	0,8	2,5 (3,0)
Full-load delivery without charge-air pressure	600	35,0-36,0	cm³/1000 strokes	0	
1.4 Idle regulation	350	9,0-13,0	cm³/1000 strokes	0	2,5 (3,0)
1.5 Full-speed regulation	2400	23,0-29,0	cm³/1000 strokes	0,8	
1.6 Start	100	min. 60,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	–				

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1400	1800	2000
	mm	1,9-2,7 (1,6-3,0)	(3,5-4,9)	5,7-6,5 (5,4-6,8)	6,2-7,0 (5,9-7,3)
2.2 Supply pump	n = rev/min	400		1800	
	bar (kgf/cm²)	1,9-2,5		6,3-6,9	
Overflow delivery	n = rev/min	300		2200	
	cm³/10 s	55-138 (40-153)		55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	2700	max. 2,0		0,8
	2500	max. 17,5		0,8
	2400		(22,0-30,0)	0,8
	2000	43,0-45,0	(41,7-46,2)	0,8
	1400		(47,7-52,2)	0,8
	1000	45,0-48,0	(43,5-49,5)	0,8
	*700	40,0-41,0	(37,5-43,5)	0,2
	600		(32,5-38,5)	0
switch-off	2200	0		
Idle stop	480	max. 2,0		
	375	4,0-8,0	(2,0-10,0)	
	350		(7,0-15,0)	
End stop	180	min. 40,0		
	300	max. 40,0		

2.4 Solenoid — max. cut-in voltage xx min. 10,0 V; test voltage xxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-6,0
MS	1,4-1,6
SVS	3,6
A	
B	

Observations

*Manifold-pressure compensator stroke = 4,5 mm
Correction at the adjusting nut. (46)

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A11

⑥

Test Specifications Distributor-type Fuel-injection Pumps

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WPP 001/4 REN 2,0 k 1

2. Edition

En

VE 4/9 F 2200 R 153-1

0460 494 156

Overflow temperature 45° C

supersedes 02.84
company: Renault
engine: J8S-T 01

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/.

Pre-stroke setting mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1400	4,0-4,4	mm	0,8	
1.2 Supply-pump pressure	1400	5,1-5,7	bar (kgf/cm²)	0,8	
1.3 Full-load delivery with charge-air pressure	1400	49,5-50,5	cm³/1000 strokes	0,8	2,5(3.0)
Full-load delivery without charge-air pressure	600	35,0-36,0	cm³/1000 strokes	0	
1.4 Idle regulation	350	9,0-13,0	cm³/1000 strokes	0	2,5(3,0)
1.5 Full-speed regulation	2400	23,0-29,0	cm³/1000 strokes	0,8	
1.6 Start	100	min. 60,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-				

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1400	1800	2000
	mm	1,9-2,7 (1,6-3,0)	(3,5-4,9)	5,7-6,5 (5,4-6,8)	6,2-7,0(5,9-7,3)
2.2 Supply pump	n = rev/min	400		1800	
	bar (kgf/cm²)	1,9-2,5		6,3-6,9	
Overflow delivery	n = rev/min	500		2200	
	cm³/10 s	55-138 (40-153)		55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)
End stop	2700	max. 2,0	0,8
	2500	max. 17,5	0,8
	2400	(22,0-30,0)	0,8
	2000	43,0-45,0(41,7-46,2)	0,8
	1400	(47,7-52,2)	0,8
	1000	45,0-48,0(43,5-49,5)	0,8
	*700	40,0-41,0(37,5-43,5)	0,2
	600	(32,5-38,5)	0
switch-off	2200	0	
Idle stop	480	max. 2,0	
	375	4,0-8,0 (2,0-10,0)	
	350	(7,0-15,0)	
End stop	180	min. 40,0	
	300	max. 40,0	

2.4 Solenoid

max. cut-in voltage xxx min. 10 V
~~[illegible]~~ rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-6,0
MS	1,4-1,6
SVS	3,6
A	
B	

Observations

*Manifold-pressure compensator stroke = 4,5 mm
Correction at the adjusting nut. (46)

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10.84

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Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 REN 2,0f
3. Edition
En
5.84

VE 4/9 F 2250 R 158 Overflow temperature 45° C
0 460 494 145

supersedes
company: Renault
engine: J85-706

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting mm

1. Settings

	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1400	4,4-4,8	mm		
1.2 Supply-pump pressure	1400	4,9-5,5	bar (kgf/cm²)		
1.3 Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
Full-load delivery without charge-air pressure	1400	38,5-39,5	cm³/1000 strokes		2,5 (3,0)
1.4 Idle regulation	400	7,5-11,5	cm³/1000 strokes		2,5 (3,0)
1.5 Full-speed regulation	2400	17,0-23,0	cm³/1000 strokes		
1.6 Start	100	min. 52,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	1400				

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	1000	1400	2000
	mm	2,6-3,4 (2,3-3,7)	(3,9-5,3)	6,7-7,5 (6,4-7,8)
2.2 Supply pump	n = rev/min	1000		2000
	bar (kgf/cm²)	3,9-4,5		6,5-7,1
Overflow delivery	n = rev/min	500		2250
	cm³/10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	2550	max. 2,0	
	2400	(16,0-24,0)	
	2200	31,4-33,4 (30,1-34,7)	
	2100	32,7-34,7 (31,4-35,9)	
	1400	(36,7-41,2)	
	1000	35,8-38,8 (34,3-40,3)	
switch-off	2250	0	
Idle stop	650	max. 5,0	
	400	(5,5-13,5)	
End stop	320	min. 45,0	
	430	max. 45,0	

2.4 Solenoid	max. cut-in voltage	xxx min. 10 V
	test voltage	rated voltage 12V.

xxx

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 3,6
A X XK	
B X XL	

Observations

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BOSCH

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Test Specifications Fuel Injection Pumps and Governors (1A)

WPP 001/4 PEU 1,1 a
1. Edition
En

PES 2 A 80 D 420 RS 1259 RSV 450-1350 A2B 580 DR
Komb.-Nr. 0 400 472 043 A2C 580 R

supersedes
company Peugeot
engine C 193

Testcil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1350	9,0-9,1	3,8 - 3,9	0,2(0,35)			
450	8,1-8,3	1,0 - 1,4	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 23	450	8,2	1350	9,0-9,1
	x =	4,0					100	min.19,0	690	9,5-9,7
							450	8,6-8,8	500	10,2-10,3
ca. 52	8,0	1390-1400					740-800	= 2,0		
(2a)	4,0	1415-1445					800	max. 1,0		
	1640	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1350	37,5-38,5 (36,0-40,0)	1390-1400*	900	31,5-33,5 (30,0-35,0)	100	60,0-70,0 (57,0-73,0)	-	-
			500	29,5-31,5 (28,0-33,0)		= 18,6 - 19,2 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 KHD 1 g 11
1. Edition

En

PES 4 A 80 D 410/3 RS 1300 RSV 325-1150 A 8 C 2163 - 2 L

Komb.-Nr. 0 400 464 130

supersedes
company KHD
engine F 4 L 912
51 kW/2300 min^{-1}
Schlepper DX 4,10

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9 - 2,0 (1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1175	10,8+0,1	5,2 - 5,3	0,25(0,4)			
325	8,4-8,6	1,0 - 1,6	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 12	325	8,0	1175	10,8-10,9
	x =	3,25							500	12,0-12,1
ca. 54	9,8	1215-1225					325	8,4-8,6		
(2a)	4,0	1280-1310					470-530	= 2,0		
	1400	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limiter, Note changed to): rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1175	52,0 - 53,0 (50,5 - 54,5)	1215-1225*	800	51,5 - 53,5 (49,5 - 55,5)	100	115,0-125,0 (112,0-128,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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AA5

Test Specifications Fuel Injection Pumps and Governors

(1A) WPP 001/4 KHD 3,0 b
1. Edition
En

PES 3 A 80 D 410/3 RS 1324 RSV 325-1150 A 8 C 715-1 L
Komb.-Nr. 0 400 463 145

supersedes -
company KHD
engine F 3 L 912

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0 (1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8+0,1	5,8-5,9	0,2(0,35)			
325	8,0-8,2	1,2-1,8	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in ☐

Testoil-ISO 4113

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.20	325	7,6	1150	10,8-10,9
									500	11,2-11,3
							100	min.19,5	775	10,8-11,1
ca.55	9,8	1190-1200					325	8,0-8,2		
(2a)	4,0	1255-1285					460-520	= 2,0		
	1375	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to): rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1000	58,0-59,0 (56,5-60,5)	1190-1200*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 KHD 1 g 15

1. Edition

En

PES 3 A 80 D 410/3 RS 1324 RSV 325-1200 A 8 B 2154 DL
A 8 C 2154 L

Komb.-Nr. 0 400 463 143

supersedes
company KHD
engine F 3 L 912
33 kW/2400 min^{-1}
Schlepper

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0 (1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,2+0,1	6,1-6,2	0,2(0,35)			
325	8,9-9,1	1,7-2,3	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 19	325	8,5	1200	11,2-11,3
	x =	4,5							500	11,7-11,8
							100	min.19,0	825	11,4-11,6
ca. 56 (2a)	10,2	1240-1250					325	8,9-9,1		
	4,0	1285-1315					470-530	= 2,0		
	1450	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limiter, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1200	60,5-61,5 (59,0-63,0)	1240-1250*	825	54,5-56,5 (53,0-58,0)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 KHD 1 g 14

1. Edition

En

PES 3 A 80 D 410/3 RS 1324 RSV 325-1075 A 8 C 2163-1 L

Komb.-Nr. 0 400 463 147

supersedes
company KHD
engine F 3 L 912
34 kW/2150 min^{-1}
Schlepper DX 3,10

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0 (1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	11,6+0,1	5,1-5,2	0,25(0,35)			
325	8,5-8,7	1,0-1,6	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 17	325	8,1	800	11,6-11,7
	x = 4,0								500	11,6-11,7
							100	min.19,5	900	11,5-11,6
ca.50	9,7	1115-1125					325	8,5-8,7	1075	10,8-11,0
(2a)	4,0	1155-1185					480-540	= 2,0		
	1320	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limiter: Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
800	51,0-52,0 (49,5-53,5)	1115-1125*	-	-	100	115,0-125,0 (112,0-128,0) = 19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 KHD 1 g 13

1. Edition

En

PES 3 A 80 D 410/3 RS 1324 RSV 325-1250 A 8 C 2168-1 L

Komb.-Nr. 0 400 463 148

supersedes

company KHD

engine F 3 L 913
45 kW/2500 min^{-1}
Schlepper DX 3,30

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0 (1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	10,7+0,1	5,6-5,7	0,25(0,35			
325	7,4-7,6	1,0-1,6	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	800	0,3-0,7	-	-	-	ca. 19	325	7,9	1250	10,7-10,8
	x =	4,0							500	11,3-11,4
							100	min.19,5	1090	10,9-11,2
ca. 57	9,7	1290-1300					325	8,3-8,5		
	4,0	1400-1430					825-885	= 2,0		
(2a)	1565	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1250	55,5-56,5 (54,0-58,0)	1290-1300*	800	48,5-50,5 (46,5-52,5)	100	115,0-125,0 (112,0-128,0) =19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps and Governors (1A)

WPP 001/4 LOM 3,7 b
2. Edition

En

PES 4 A 80 D 420 LS 1345 RSV 350-750 A 7 B 2183-1 R
Komb.-Nr. 0 400 474 161 A 7 C 2183-1 R

supersedes 11.83
company Lombardini
engine LDA 934

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,7 - 2,8 (2,65-2,85) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9,2-9,3	5,3-5,4	0,25(0,4)			
350	7,9-8,1	2,8-3,4	0,2 (0,35)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3 - 1,0	-	-	-	ca. 17	350	7,5	-	-
	x = 3,75						100	min.19,5		
ca. 36 (2a)	8,2	740-750					350	7,9-8,1		
	4,0	760-790					395-455	=2,0		
	925	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to): rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
700	52,5-53,5 (51,0-55,0)	740-750*	-	-	100	100,0-110,0 (97,0-113,0) = 15,2-15,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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A20

A20

Test Specifications Fuel Injection Pumps and Governors (1)

WPP 001/4 MB 5,7 i 8

1. Edition

En

PES 6 A 80 C 410 RS 2085 X D RQV 300-1425 AB 615 D

supersedes-
company Daimler-Benz
engine OM 352
66 kW (90 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,9 - 4,3	0,3			
	6	1,2 - 2,0				
200	9	1,8 - 2,6				

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
ca. 66	1425	16,0-19,4	-	-	-	ca. 10	200	6,0-7,4	250	0,9-1,1
	1550	8,2-13,4					400	3,5-5,2	640	3,3-3,7
	1650	1,4- 8,0					480	2,7-3,8	1030	5,0-6,2
	1700	0 - 5,2					600	1,4-2,8	1425	8,7
	1790	0					770	0		
						(3a)				

Torque control travel a = 1,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1400	38,5-40,5 (37,5-41,5)	1505-1515*	1000	35,5-38,5	100	72,5-82,5	1425	0
			800	36,0-39,0			600	1,6-1,8
			500	37,7-41,2				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

A21

A21

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(1A)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 m

6. Edition

En

Testoil-ISO 4113

PES 6 A 80 C 410	RS2085X	EP/RSV 350-1300	A2B1005D	(1)	..2C..
..D..	RS2085X	EP/RSV 350-1425	A2B1001D	(2)	
	RS2085X	EP/RSV 350-1425	A2B1007D	(3)	
	RS2085X	EP/RSV 350-1400	A2B1052D	(4)	
	RS2085T	EP/RSV 350-1300	A2B1005D	(5)	

superseded 4.84

company Daimler-Benz

engine OM 352 - Unimog

(1+5) 84 PS

(2) 90 PS

(3) 100 PS

(4) 110 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3	0,3			
	6	1,2 - 2,0				
	15	9,8 - 11,0				
200	9	1,8 - 2,6				

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

A2 C
350-1300 A2 B1005 D (1)

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	lose	350	6,9	1300	8,0+0,1
	x	= 4,25					100	min.17,5	500	9,4+0,1
ca.48 (5)	7,0	1340-1350					350	6,8-7,0	700	9,2+0,2
	4,0	1400-1430						=2,0	950	8,3+0,3
	1575	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to .. rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
(1) 1300	40,0 - 41,0 (38,5-42,5)	1340-1350 *	500	39,5 - 41,5 (37,5-43,5)	100	78,0 - 88,0 (75,0-91,0) = 14,5 - 14,9 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

A22

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B. Governor Settings

350-1425 A2 B1001D (2)

(1) Upper rated speed			Intermediate rated			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.60	1425	16,0	without auxiliary spring			ca.22	350	7,5	1400	0
	1500	11,5					200	19 - 21		
	1560	6,8					350	7,2-7,8	900	0 -0,2
	1530	7,5-10,5					500	5,1-6,6	400	1,3-1,5
	1600	4,0-6,0					700	0,1-4,0		
(5)	1820	0,3-1,0	with auxiliary spring				940	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm
rev/min	cm³/1000 strokes		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
(2) 1400	41,0 - 43,0	1455-1465	1000	37,0 - 40,0	100	72,5 - 82,5		
			800	38,5 - 41,5				
			500	40,0 - 43,0				
			(6a)					
(increase by ± 0,5	cm³)							

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

350-1425 A2 B1007D (3)

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.60	1425	16,0	without auxiliary spring			ca.22	350	7,2	1400	0
	1500	11,4					200	19 - 21		
	1560	6,6					350	6,9-7,5	950	0
	1520	8,0-10,9	with auxiliary spring				600	2,3-4,6	450	0,9-1,1
	1650	2,1-4,4					850	0 -1,5		
(5)	1800	0,3-1,5								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm
rev/min	cm³/1000 strokes		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
(3) 1400	45,0 - 47,0	1420-1430	1000	41,0 - 44,0	100	72,5 - 82,5		
			800	42,5 - 45,5				
			500	40,0 - 43,0				

Checking values in brackets

* 1 mm less control rod travel than col 2

A23

B. Governor Settings

350-1400 A2 B1052D (4)

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.59	1400	16,0	without auxiliary spring			ca.22	350	7,5	1400	0
	1480	10,8					200	19 - 21	800	0,1-0,3
	1530	7,0					350	7,2-7,8	400	0,8-1,0
	1500	7,2-10,6					600	3,4-5,4		
(5)	1600	3,6-5,5					950	0 - 1		
	1800	0,3-1,0	with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm
rev/min	cm³/1000 strokes		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
(4) 1400	50,5 - 52,5	1425-1465	1000	46,0 - 49,0	100	72,5 - 82,5		
			800	44,5 - 47,5				
			500	44,5 - 47,5				
(increase by ± 0,5		cm³)	(6a)					

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

350-1300 A2 B1005D mit 2085 T (5)

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.51	1300	16,0	without auxiliary spring			ca.19	350	8,0	1280	0
	1360	10,8					200	19 - 21		
	1400	6,7					350	7,7-8,3	800	0,8-1,0
ca.49	1300	ca.8,2	with auxiliary spring				600	2,2-4,3		
(5)	1400	ca.3,7					780	0 - 1		
	1520	0,3-1,0								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm
rev/min	cm³/1000 strokes		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
(5) 1290	40,0 - 41,0	1330-1340	800	36,5 -39,5	100	72,5 - 82,5		
	(38,5 - 40,5)	(1325-1345)		(35,0 - 41,0)				
			500	36,5 - 39,0				
				(35,0 -40,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 e 1
5. Edition

En

PES 6 A 80 D 410 RS 2085 Y RQV 300-1475 AB 533 DL

Komb.-Nr. 0 400 846 185

supersedes 10.83
company Daimler-Benz
engine OM 352

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1450	8,2-8,3	4,6 - 4,7	0,2(0,35)			
300	6,9-7,1	1,3 - 1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1420	15,2-17,8	-	-	-	ca. 14	100 300	min. 8,5 6,9-7,1	250 660 1060 1475	0,8-1,1 3,4-3,8 5,3-5,5 8,3
ca.60	7,2 4,0 1700	1505-1515 1560-1590 0 - 1,0				330-450 (3a)				

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1450	46,0-47,0 (44,5-48,5)	1505-1515*	800	45,5-47,5 (44,0-49,0)	100	71,5-81,5 (68,5-84,5) = 12,9-13,3 mm RW	1450 500 800 1200	8,2-8,3 9,2-9,3 8,9-9,1 8,2-8,5

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

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(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 e 2

2. Edition

En

PES 6 A 80 D 410 RS 2085 Y RQV 300-1475 AB 621 DL

Komb.-Nr. 0 400 846 241

supersed 6.83

company Daimler-Benz

engine

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1450	8,2-8,3	4,6-4,7	0,2(0,35)			
300	6,5-6,7	1,2-1,6	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1420	15,2-17,8	-	-	-	ca.11	100	min.8,1	275	1,1-1,2
ca.64	7,2	1490-1500					300	6,5-6,7	675	3,5-3,8
	4,0	1535-1565							1075	5,4-5,5
	1700	0-1,0				380-500			1475	8,3
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
1450	46,0-47,0 (44,5-48,5)	1490-1500*	500	41,0-44,0 (39,5-45,5)	100	78,0-88,0 (75,0-91,0) = 13,7-14,1 mm RW	1450	8,2+0,1
							500	9,1+0,1
							840	9,0+0,2
							1100	8,5+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

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(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 i 5

1. Edition

En

PES 6 A 80 C 410 RS 2085 Y D RQV 300-1475 AB 622 D

Komb.-Nr. 0 400 846 242

supersedes

company Daimler-Benz

engine OM 352
81 kW (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testcheck 4/79

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,4-4,8	0,3			
	6	1,8-2,6				
200	9	2,4-3,4				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
ca. 66	1475	16,0-19,0	-	-	-	ca. 10 (3a)	100	6,7-8,0	250	0,8-1,1
	1600	8,5-13,5					300	4,8-6,5	660	3,8-4,0
	1700	1,6-8,5					500	2,5-3,7	1070	5,7-5,9
	1800	0-3,0					600	1,3-2,7	1475	8,9
	1850	0					770	0		

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1450	46,0-47,0 (44,5-48,5)	1505-1515*	800	45,5-47,5 (44,0-49,0)	100	72,5-82,5	1475	0
1000	46,0-48,0 (44,5-49,5)		500	41,5-44,0 (40,0-45,5)			600	1,1-1,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 i 6

1. Edition

En

PES 6 A 80 C 410 RS 2085 Z D RQV 300-1475 AB 626 D

supersedes

compa Daimler-Benz

engine OM 352

74 kW (100 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,4-4,8	0,3			
200	6 9	1,8-2,6 2,4-3,4				

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1): rev/min 10	mm 11
ca. 66	1475	16,0-19,0	-	-	-	ca. 10	100	6,7-8,0	250	0,8-1,1
	1600	8,5-13,5					300	4,8-6,5	660	3,8-4,0
	1700	1,6-8,5					500	2,5-3,7	1070	5,7-5,9
	1800	0-3,0					600	1,3-2,7	1475	8,9
	1850	0					770	0		
						(3a)				

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1450	41,0-43,0 (40,0-44,0)	1505-1515*	1000 800 500	38,5-41,5 39,5-42,5 36,0-39,5	100	72,5-82,5	1475 600	0 1,1-1,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

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B4

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 i 7

1. Edition

En

PES 6 A 80 C 410 RS 2085 Z D RQV 300-1475 AB 627 D

supersedes-

company Daimler-Benz

engine OM 352
74 kW (100 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,4 - 4,8	0,3			
	6	1,8 - 2,6				
200	9	2,4 - 3,4				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
ca. 66	1475	16,0-19,0	-	-	-	ca.10	100	6,7-8,0	250	0,8-1,1
	1600	8,5-13,5					300	4,8-6,5	660	3,8-4,0
	1700	1,6-8,5					500	2,5-3,7	1070	5,7-5,9
	1800	0 - 3,0					600	1,3-2,7	1475	8,9
	1850	0					770	0		
						(3a)				

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery, Control-rod stop, Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1450	41,0-43,0 (40,0-44,0)	1505-1515*	1000	38,5-41,5	100	72,5-82,5	1425	0
			800	39,5-42,5			600	1,1-1,3
			500	36,0-39,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 i 3

1. Edition

En

PES 6 A 80 C 410 RS 2194 Z D RQV 300-1475 AB 627 D

supersedes

company Daimler-Benz

engine OM 352
74 kW (100 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testing

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,4-4,8	0,3			
	6	1,8-2,6				
200	9	2,4-3,4				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
ca. 66	1475	16,0-19,0	-	-	-	ca. 10	100	6,7-8,0	250	0,8-1,1
	1600	8,5-13,5					300	4,8-6,5	660	3,8-4,0
	1700	1,6-8,5					500	2,5-3,7	1070	5,7-5,9
	1800	0-3,0					600	1,3-2,7	1475	8,9
	1850	0					770	0		
						(3a)				

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1450	41,0-43,0	1505-1515*	1000	38,5-41,5	100	72,5-82,5	1475	0
	(40,0-44,0)		800	39,5-42,5			600	1,1-1,3
			500	36,0-39,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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06

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 VMA 5,3 a

1. Edition

En

PES 6 A 90 D 410 RS 2511 RSF 250-1100 A 1 C 2185 L

Komb.-Nr. 0 400 876 319

supersedes
company Motori VM
engine 1156 DAN (T)

Port closing difference between control-rod travel 8.5 and max. = 6 - 7.5°camshaft.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3-3,4 (3,25-3,45) mm (from BDC) RW = 7,5 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1100	10,5+0,1	8,8-8,9	0,3 (0,5)			
250	7,4-7,6	1,7-2,3	0,25 (0,45)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 21	250	7,0	1100	10,5-10,6
	X = 4,0						100	min.19,5	450	10,5-10,7
							250	7,4-7,6	300	11,8-12,4
ca.56 (2a)	9,5	1140-1150					385-445	= 2,0		
	4,0	1175-1205								
	1340	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note changed to rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1100	87,5-88,5 (85,5-90,5)	1140-1150*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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B7

B2

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 KHD 4,1 c 3
1. Edition

En

PES 4 A 80 D 410/3 RS 2523 RSV 325-1400 A2B 1022 DL

Komb.-Nr. 0 400 864 043

supersedes –
company KHD
engine F4L 912
64 kW/2800 min^{-1}

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0 (1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	12,0+0,1	6,9-7,1	0,2(0,35)			
325	8,8-9,0	0,9-1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.21	325	5,0	1400	12,0-12,1
	X = 4,5						100	min.19,0	935	12,3-12,4
ca.58 (2a)	11,0	1440-1450					325	5,4-5,6	500	13,2-13,3
	4,0	1505-1535					525-585	= 2,0		
	1650	0,3-1,7					700	0 - 1,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat Note. changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1400	70,0-71,0 (68,5-72,5)	1440-1450*	850	61,5-63,5 (60,0-65,0)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

9.84

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Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 3,8 n
4. Edition

En

PES 4 A 90 D 410 RS2570 RSV 350-1400 AO B2070L

Komb.-Nr. 0 400 874 226

supersedes 8.81
company Daimler-Benz
engine OM 314
62 kW (84 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35 (2,20-2,40) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1380	11,9+0,1	6,1 - 6,3	0,3(0,45)			
350	8,8-9,0	0,5 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ▭

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.24	350	8,9**		
	X =	3,25							1380	11,9+0,1
									900	12,2+0,2
ca.57	1420-	1430=10,9					435-495	= 2,0mm	600	12,6+0,1
(2a)	1485-	1505= 4,0								
	1550=	0,3-1,7								

** Set idle-speed auxiliary spring at 2 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1380	61,5-62,5 (59,5-64,5)	1420-1430*	600	53,0- 55,0 (50,5- 57,5)	100	78,0-88,0 (75,0-91,0)	-	-
			900	59,0- 62,0 (56,5- 64,5)				

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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B9

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 8,3 n

6. Edition

En

PE 6 A 95 D 410 RS 2575 RSV 250-750 A 7 B 2124 L

Komb.-Nr. 0 400 676 166

Specifications apply to test tubing 1 680 750 015

supersedes 5.84
company DAF
engine DU 825 Generator

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers *

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 (1,95-2,15) mm (from BDC) RW 9,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
750	12,5+0,1	10,1-10,3	0,4(0,7)			
250	6,0-6,2	0,7-1,3	0,2(0,4)			
		Port closing difference between control-rod travel 9mm and max. = 3, - 4, ° camshaft				

Adjust the fuel delivery from each outlet according to the values in ☐

Test-Nr. 0 413

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0	-	-	-	ca. 15	250	6,1	-	-
	x = 4,25						250	**		
ca. 40 (2a)	11,5	770-780					260-320 = 2,0 mm			
	4,0	785-805								
	955	0,3-1,7								

** The numbers denote the sequence of the tests

Set idle-speed auxiliary spring at 2.0 mm control-rod travel, then 1/2 turn back.

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat: Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
750	100,5-102,5 (98,5-104,5)	770-780*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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B10

B10

Test Specifications Fuel Injection Pumps and Governors (1A)

WPP 001/4 DAF 8,3 n 2
2. Edition

En

PE 6 A 95 D 410 RS 2575 Y RSV 250-750 A 7 B 2124 L
Komb.-Nr. 0 400 676 172
Specifications apply to test tubing 1 680 750 015

supersede 6.83
company DAF
engine DHTD 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1 (1,95-2,15) mm (from BDC) RW = 7,5 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	13,2+0,1	11,1 - 11,3	0,4(0,6)			
250	6,0-6,2	0,7 - 1,3	0,2			
		POrt closing difference between control.rod travel 9 mm and max. = 3 - 4° camshaft				

Adjust the fuel delivery from each outlet according to the values in ☐

Testing 4113

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Control-lever deflection in degrees 7	Lower rated speed rev/min 8	Control rod travel mm 9	(3) Torque control rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.16	250	6,1	-	-
	x =	4,25					250	6,0-6,2		
ca. 40 (2a)	12,2	770-780					260-320	2,0**		
	4,0	785-805								
	995	0,3-1,7								

The numbers denote the sequence of the tests

Set idle-speed auxiliary spring at 2.0 mm control-rod travel, then 1/2 turn back.

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp 40°C (104°F) rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat Note changed to) rev/min 3	(3a) Fuel delivery characteristics rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle rev/min 6	cm³/1000 strokes 7	(4a) Idle stop rev/min 8	Control rod travel mm 9
750	110,5-112,5 (108,5-144,5)	770-780*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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B11

B11

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 KHD 9,6 o
1. Edition

PE 6 A 95 D 410 LS 2587 RSV 300 - 1150 A 8 C 1002 - 1 L En
Komb.-Nr. 0 400 676 173

supersedes
company KHD
engine F 6 L 413 F
118 kW/2300 min^{-1}
Kompressor

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 - 1,6 (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	9,5-9,6	7,9 - 8,1	0,35 (0,6)			
300	6,4-6,6	1,0 - 1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3 - 0,7	-	-	-	ca. 17	300	6,0	1150	9,5 - 9,6
	x = 3,75						100	min. i9,5	500	9,8 - 9,9
ca. 64 (2a)	8,5	1190-1200					300	6,4-6,6	740	9,5 - 9,7
	4,0	1250-1280					540-600	= 2,0		
	1415	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1150	79,0 - 81,0 (77,0 - 83,0)	1190-1200*	-	-	100	120,0-130,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 15,8 m
1. Edition

En

PE 10 A 95 D 610/4 LS 2589 RQV 300-1150 AB 1086 L
Komb.-Nr. 0 400 649 241
1 - 10- 9 - 4 - 3 - 6 - 5 - 8 - 7 - 2
0 - 27- 72- 99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

supersedes
company KHD
engine F 10 L 413
196 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5 - 1,6 (1,45-1,65) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	8,5-8,6	7,9 - 8,1	0,35(0,6)			
300	6,4-6,6	1,0 - 1,6	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min 1a 2a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 4 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 3 9	Sliding sleeve travel 1 rev/min 10	mm 11
max.	1170	15,2-17,8	-	-	-	ca. 20	300	6,4-6,6	250	0,3-0,5
									600	2,8-3,1
ca. 58	7,5	1190-1200								
	4,0	1205-1235							1000	6,4-6,7
	1350	0 - 1,0				420-540			1200	8,8-9,2
						3a				

Torque control travel a = 0,90 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) 2: rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed 2b 4a: rev/min 3	Fuel delivery characteristics high idle speed 5a 5b: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point 6: rev/min 6	cm³/1000 strokes 7	Torque-control travel 5: rev/min 8	Control rod travel mm 9
1150	79,0-81,0 (77,0-83,0)	1190-1200*	800	85,5-88,5 (83,0-91,0)	100	120,0-130,0 (117,0-133,0)	1150	8,5-8,6
							500	9,4-9,5
							990	9,1-9,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

BOSCH Geschäftsbereich KH. Kundendienst. Kfz-Ausrüstung
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Test Specifications Fuel Injection Pumps and Governors (1A)

WPP 001/4 KHD 1 g 12
1. Edition
En

PES 6 A 85 D 410 RS 2591 RSV 325-1150 A 8 C 2020
Komb.-Nr. 0 400 876 320

supersedes
company KHD
engine BF 6 L 913
117 kW/2300 min^{-1}
Schlepper DX 7,10

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5 - 2,6 (2,45-2,65) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	12,4+0,1	8,6 - 8,7	0,3(0,45)			
325	7,4-7,6	1,0 - 1,6	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7	-	-	-	ca. 17	325	7,0	1200	12,4-12,5
	x =	4,0					100	min.19,5	500	13,5-13,6
							325	7,4-7,6	1000	12,9-13,1
ca. 55	11,6	1240-1250					595-655	= 2,0		
(2a)	4,0	1320-1350								
	1485	0,3 - 1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limiter: Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
LDA 1200	0,7 bar 85,5-86,5 (83,5-88,5)	1240-1250*	LDA 500	0 bar 65,0-67,0 (63,0-69,0)	100	110,0-120,0 (107,0-123,0)		

Checking values in brackets

* 1 mm less control rod travel than col 2

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B14

B14

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure – bar	Measurement Gauge pressure – bar	Control rod travel – diminution difference mm (1)
PES 6 A..RS2591 +RSV..A 8 C 2020	0,70		13,5 - 13,6
		0	12,2 - 12,3
		0,28	13,2 - 13,3
		0,11	12,6 - 12,8

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 KHD 6,1 k 3
5. Edition

En

PES 6 A 85 D 410/3 RS 2592 RQV 300-1250 AB 1188 L
Komb.-Nr. 0 400 836 028

supersedes 5.84
company KHD
engine BE 6 L 913
118 kW/2500 min^{-1}

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test oil ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2 - 2,3 (2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,0+0,1	8,9 - 9,0	0,3(0,5)			
300	6,9-7,1	0,9 - 1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1290	15,2-17,8	-	-	-	ca. 13	100	min.8,5	325	1,5-1,7
							300	6,9-7,1	850	4,9-5,1
ca. 65	11,0	1290-1300				355-470			1150	7,1-7,3
	4,0	1375-1405							1400	9,9
						(3a)				

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2) rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a) rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b) rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel (5) rev/min 8	Control rod travel mm 9
LDA 1250	0,7 bar 88,5-89,5 (86,5-91,5)	1290-1300*	LDA 600	0,7 bar 82,5-84,5 (80,0-87,0)	100	110,-120,0 (107,0-123,0) = 17,1-17,5 mm RW	1250	12,0+0,1
							500	12,8+0,1
							775	12,5+0,2
							1025	12,1+0,3
LDA 800	0,7 bar 85,0-88,0 (83,0-90,0)		LDA 500	0 bar 59,0-61,0 (57,0-63,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

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C16

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D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 k 3

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
PES 6 A..RS 2592 + RQV..AB 1188 L	0,70		12,8 - 12,9
		0	10,9 - 11,1
		0,26	12,4 - 12,5
		0,19	11,9 - 12,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

B17

BA7

Ep

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 KHD 1 g 6

4. Edition

En

PES4A85D 410/3 RS 2610 RSV 325-1150 A8B 2102 L
A8C 2102 L

Komb.-Nr. 0 400 864 051

supersedes 9.83
company KHD
engine F4L913
55 kW Schlepper
D 7807-S 16

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,5-2,6 (2,45-2,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1175	11,2+0,1	6,7-6,8	0,3(0,45)			
325	8,7-8,9	0,9-1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800 X = 4,0	0,3-0,7	-	-	-	ca.17	325	8,3	1150	11,2-11,3
							325	8,7-8,9	500	11,8-11,9
ca.53 (2a)	10,2	1215-1225					450-510	= 2,0	870	11,4-11,6
	4,0	1270-1300								
	1400	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to): rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1175	66,5-67,5 (64,5-69,5)	1215-1225*	800	61,0-63,0 (58,5-65,5)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MWM 6,2 e 3
1. Edition

En

PES 6 A 90 D 320/3 RS 2660 RSV 325-1200 AOC 2182-1R
Komb.-Nr. 0 400 866 114

supersedes
company MWM
engine TD 226 B-6

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,95-3,05 (2,90-3,10) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1200	11,0+0,1	9,9-10,0	0,3(0,45)			
325	5,9-6,1	0,8-1,4	0,25(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0 X = 3,25	-	-	-	ca.17	325	5,5	1200	11,0-11,1
							325	5,9-6,1	500	11,5-11,6
									1110	11,2-11,4
ca.45 (2a)	10,0	1240-1250					455-515	= 2,0		
	4,0	1285-1315								
	1455	0,3-1,4								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limiter: Note changed to rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
LDA 1200	0,7 bar 99,0-100,0 (97,0-102,0)	1240-1250*	LDA 500	0 bar 62,0-63,0 60,0-65,0)	100	135,0-145,0 (132,0-148,0) =19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure = in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
PES6A..RS2660	0,70		11,5-11,6
+RSV..AOC2182-1R		0	9,2-9,3
		0,46	11,0-11,1
		0,21	9,8-10,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 6,0 a

1. Edition

En

PES 6 A 90 D 410 RS 2667 RQV 300-1400 AB 1065-4 L

Komb.-Nr. 0 400 846 522

Specifications apply to test tubing 1 680 750 015

supersedes

company Daimler-Benz

engine OM 366 100 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35 (2,20-2,40) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,1+0,1	6,4-6,5	0,3(0,45)			
300	8,7-8,9	0,9-1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 21	100	min.10,3	250	0,7-0,9
							300	8,7-8,9	630	3,8-3,9
							580-640=2,0		1020	5,3-5,4
ca. 65	10,1	1440-1450							1400	7,7
	4,0	1545-1575								
	1630	0-1,0				(3a)				

Torque control travel a = 1,1 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1400	63,5-64,5 (61,5-66,5)	1440-1450*	500	51,0-54,0 (48,5-56,5)	100	78,0-88,0 (75,0-91,0)	1400	11,1+0,1
							500	12,2+0,1
			900	53,5-56,5 (51,0-59,0)		=16,4-17,0 mm RW	900	11,7+0,2
							1100	11,5+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps and Governors

(1A) WPP 001/4 KHD 12,6 b 1
1. Edition
En

PE 8 AM 80 D 310 RS 2004 RSV 200-1150 A 4 C 73 L
A 4 B 73 DL
Komb.-Nr. 0 405 078 204

supersedes
company KHD
engine F 8 L 714 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	12,0	7,4 - 7,8	0,4			
	9,0	3,9 - 4,7				
	15,0	10,3 -11,4				
200	9,0	2,8 - 3,6				

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4 5 6	(4) Lower rated speed: Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.72	1150	16,0	without auxiliary spring	ca. 25	200	6,0	1130	0
	1200	9,0			100	19,0-21,0	900	0
	1230	4,5			200	5,7- 6,3	700	0,7 - 0,9
	1180	11,0-13,0			300	3,6- 5,0	400	1,1 - 1,3
(2a)	1200	7,0-10,5			400	0,4- 3,4		
	1250	2,2- 4,5	with auxiliary spring		550	0- 1,0		
	1350	0 - 1,0						

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat: Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1150	72,0 - 73,0 (70,5 - 74,5)		800	75,0 - 77,0 (37,5 - 78,5)	-	-	-	-
			600	75,5 - 77,5 (74,0 - 79,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

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Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 VOL 6,0 m
4. Edition
En

PES 6 MW 100/320 RS 1004
RQV 300... 1250 MW 20
Komb.-Nr. 0 03 446 116

supersedes 5.82
company Volvo
engine TD 60 B

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,6+0,1	8,35-8,55	0,35(0,6)			
300	5,4-5,6	0,95-1,35	0,35(0,55) 0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1325 1500	15,2-17,8 0 - 1,0				ca. 12	100 300	min.6,9 5,4-5,6		
ca. 63	9,6 4,0	1290-1300 1340-1370				(3a)	300-390 = 2,0			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle Switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 83,5-85,5 (81,5-87,5)	1290-1300*	LDA 500	0 bar 52,5-54,5 (50,0-57,0)	100	19-21 mm RW 120-130 (117-133)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure VOL 6,0 m

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution / difference mm (1)
RS 1004	0,7		10,6 - 10,7
with MW 20		0,27	9,8 - 9,9
		0,56	10,4 - 10,5
		0	10,0 - 10,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 VOL 6,0 V 1
1. Edition

En

RES 6 MW 100/320 RS 1004
RQV 300-1250 MW 33
0 403 446 125

supersedes
company Volvo
engine TD 60 B
116,5 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90 (2,75-2,95) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,6+0,1	8,35-8,55	0,35(0,6)			
300	5,4-5,6	0,95-1,35	0,35(0,55)			
500	10,0+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1320 1500	15,2-17,8 0-1,0				ca. 11	300 100	5,4-5,6 min.6,9		
ca. 59	9,6 4,0	1290-1300 1390-1420				(3a)	320-500			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 83,5-85,5 (81,5-87,5)	1290-1300*	LDA 500	0 bar 52,5-54,5 (50,0-57,0)	100 300	120,0-130,0 (117,0-133,0) 9,5-13,5 (7,0-16,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure VOL 6,0 V 1

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
RS 1004 with MW 33	0,7	0,27 0,56 0	10,6 - 10,7 9,8 - 9,9 10,4 - 10,5 10,0 - 10,1

Notes

(1) when n = rev/min and gauge pressure = bar (- maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 VOL 6,0 V
1. Edition

En

Test:ISO 4113

PES 6 MW 100/320 RS 1004
RQV 300-1150 MW 54
0 403 446 148

1- 5- 3 - 6 - 2 - 4
0-60-120-180-240-300 ± 0,50 (0,75)

supersedes
company Volvo BM
engine TD 60 LLK
125 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90 (2,75-2,95) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,4+0,1	9,6-9,8	0,35(0,6)			
300	5,0-5,1	1,0-1,4	0,35(0,55)			
1000	11,4+0,1		0,5 (0,7)			
700	10,7+0,1					

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1150 1300	15,2-17,8 0-1,0				ca. 14	300 100	5,0-5,1 min.6,8	1100 700 300	8,4-8,6 3,6-3,8 1,0-1,5
ca. 51	10,4 4,0	1190-1200 1235-1265				(3a)	320-450			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a) rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 700	0,7 bar 96,0-98,0 (94,0-100,0)	1190-1200*	LDA 1000 LDA 700	0,7 bar 98,0-102,0 (95,5-104,5) 0 bar 82,0-84,0 (79,5-86,5)	100 300	130,0-140,0 (127,0-143,0) 10,0-14,0 (7,5-16,5)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure VOL 6,0 V

Pump/governor	Setting Gauge pressure - bar	Measurement Gauge pressure = bar	Control rod travel - diminution / difference mm (1)
RS 1004 with MW 54	0,7	0,5 0,38 0	11,4 - 11,5 11,2 - 11,3 10,8 - 10,9 10,7 - 10,8

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 PEN 6,0 e
4. Edition

Test oil ISO 4113

En

PES 6 MW 100/320 RS 1004 RSV 325-1250 MWOA 308
0 403 476 011

1- 5- 3 - 6 - 2 - 4
0-60-120-180-240-300 ± 0,50 (0,75)

supersedes 1.84
company Volvo/Penta
engine TD 60 D
118 kW (160 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90 (2,75-2,95) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,5+0,1	8,95-9,15	0,35(0,6)			
325	4,3-4,5	1,0 - 1,3	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-0,7				ca. 21	325	3,9	350	11,1+0,1
	x =	4,0					325	4,3-4,5	500	10,8+0,1
ca.49 (2a)	1290-1330 = 9,6 1335-1365 = 4,0 1450 = 0,3-1,7						380-430	= 2,0	1250	10,5+0,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1000	89,5-91,5 (87,5-93,5)	1290-1300*			100	min. 140	325	4,4
					325	10,0-13,0 (7,5-15,5)		

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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C5

C5

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 8,1 b

3. Edition

En

Testoil-ISO 4113

PES 6 MW 100/720 RS 1008 RQV 300 ... 1300 MW 13 DR

0 403 446 112

supersedes 5.82
company: Fiat
engine 8360.05

1 - 5 - 3 - 6 - 2 - 4
0 - 60 - 120 - 180 - 240 - 300 ± 0,5 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,50-2,60 mm (from BDC) RW 9,0-12,0

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	12,5+0,2	8,85-9,05	0,35(0,6)			
300	7,4-7,6	0,95-1,35	0,35(0,55)			
800	13,0+0,2		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in ▭.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1300 1600	15,2-17,8 0,0-1,0	-	-	-	10-18	100 300	min.9,5 7,5-7,6	300 700-770	0,8-0,9 3,4
56-64	11,6 4,0	1350-1360 1440-1470				③a	380-485		1340-1350	7,95

Torque control travel a = 0,5 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation ②b intermediate speed ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
1300	88,5-90,5 (86,5-92,5)	1350-1360*	800	86,5-90,5 (84,5-92,5	100 RW = Entriegelung 12 V	135-145 19,7-20,4	1200 12,5-	12,7
					300	9,5-13,5 (7,0-16,0)	900 13,0-	13,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

C6

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Test Specifications Fuel Injection Pumps and Governors

(1) WPP 001/4 PER 10,0 a
7. Edition
En

PES 8 MW 100/320 RS 1011
RQV 375... 1300 MW 18
Komb.-Nr. 0 403 448 101

supersedes 82
company Perkins
engine AV 8.640

Port-closing mark on rear side

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,50-2,60 (2,45-2,65) mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1300	10,8+0,1	9,45-9,65	0,35(0,6)			
375	4,9-5,1	1,05-1,45	0,35(0,55)			
800			0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1300	15,2-17,8	30-50	700	4,7	ca.12	100	min. 6,6	375	1,2-1,3
	1600	0,1-1,0		450	8,3		375	4,9-5,1	515-575	2,6
ca. 65	9,8	1365-1375				(3a)	520-580 = 2,0		1370-1390	8,5
	4,0	1435-1465								

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1300	94,5-96,5 (92,5-98,5)	1365-1375*		89,0-91,0 (87,0-95,0)	100	min. 140		
					375	10,5-14,5 (8,5-17,0)		
					Umschaltpunkt	100-290 (80-310)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

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Port closing and TDC markings

Comb.-No.	° camshaft between port-closing and TDC	at control-rod travel 21 mm (Start)
... 101	at control-rod travel 10,5 mm	10,5°
	17°	

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 FIA 5,5 g 1
1. Edition

En

PES 6 MW 90/720 RS 1015-1 RQV 300-1600 MW 49
0 403 446 146

superseded
company IVECO-Fiat
engine 8062.24.668
140 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,50-2,60 (2,45-2,65) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,4+0,1	7,6-7,8	0,35(0,6)			
375	6,6-6,7	1,0-1,4	0,35(0,55			
1600	10,4+0,1		0,5 (0,7)			
500	8,9-9,0					

Adjust the fuel delivery from each outlet according to the values in [ ].

* Note: Idle adjustment must be made at 375 min/1. The rotational speed n = 300 min/1 has been shown on the name plate.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1640 1900	15,2-17,8 0-1,0				ca. 16	375 100	6,6-6,7 min.9,0		
ca. 63	9,4 4,0	1640-1650 1770-1800				(3a)	390-880			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1000	0,5 bar 76,0-78,0 (74,0-80,0)	1640-1650*	LDA 1600	0,5 bar 82,0-86,0 (80,0-88,0)	200	160,0-180,0 (157,0-183,0)		
			LDA 500	0 bar 42,5-44,5 (40,5-46,5)	375	10,0-14,0 (9,0-15,0)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure FIA 5,5 g 1

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel: diminution / difference mm (1)
RS 1015 with RQV..MW 49	0,5	0 0,21 0,18	10,4 - 10,5 8,9 - 9,0 10,0 - 10,1 9,3 - 9,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 RVI 8,8 f
4. Edition

En

PES 6 MW 100/320 RS 1016 RQV 300-1400 MW 25,2
0 403 446 129 * Start-of-delivery mark 8° after start of delivery with control-rod travel 10.5 mm.

1- 5- 3 - 6 - 2 - 4
0-60-120-180-240-300

supersedes 1.84
compar. RVI
engine MIDR 06.02-12
125 kW (170 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,00-3,10 (2,95-3,15) mm (from BDC) RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,1+0,1	9,1-9,3	0,35(0,6)			
300	5,8-5,9	0,95-1,35	0,35(0,55)			
900	11,1+0,1		0,5 (0,7)			
500	9,4+0,1		0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1400 1700	15,2-17,8 0-1,0	-	-	-	ca. 13	300 200	5,8-5,9 max.7,5		
ca. 62	10,1 4,0	1455-1465 1575-1605				(3a)	490-550 = 2,0			

Torque control travel = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1400	0,7 bar 91,0-93,0 (89,0-95,0)	1455-1465*	LDA 900	0,7 bar 86,0-90,0 (84,0-92,0)	100	94,0-104,0 (91,0-107,0)		
			LDA 500	0 bar 52,0-54,0 50,0-56,0	300	9,5-13,5 (7,0-16,0)		
					100-230	(80-250)		

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

C11

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C11

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure RVI 8,8 f

Pump/governor	Setting Gauge pressure bar	Measurement Gauge pressure = bar	Control rod travel- diminution / difference mm (1)
RS 1016 with RQV..MW 25-2	0,12	0,16 0 0,7	9,9 - 10,0 10,7 - 10,8 9,4 - 9,5 11,1 - 11,2

Notes

(1) when n = rev/min and gauge pressure – bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 RVI 8,8 g

3. Edition

En

Testoil-ISO 4113

PES 6 MW 100/320 RS 1016 RQ 750 MW 42

0 403 446 130

supersedes 11.82
company RVI
engine MIDR 06.02-12
100 kW (136 PS)

1 - 5 - 3 - 6 - 2 - 4
0 - 60 - 120 - 180 - 240 - 300 ± 0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,00-3,10 (2,95-3,15) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	14,5+0,1	13,35-13,55	0,35(0,6)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
				13,5 4,0	750-755 785-795						
785 850	3,9-4,1 0,0-1,0										

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
700	133,5-135,5 (131,5-137,5)				100	19,0-21,0 RW min. 80,0

Checking values in brackets

10.84

C13

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(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 PER 10,0 f
2. Edition

En

Test-ISO 4113

PES 8 MW 100/720 RS 1020 RQV 500-1125 MW 30
0 403 448 107
1 - 8 - 7 - 5 - 4 - 3 - 6 - 2
0 - 45 - 90 - 135 - 180 - 225 - 270 - 315 ± 0,50(0,75)

supersedes
company Perkins
engine V8.640 GR
134 kW (182 PS)

Port-closing mark on rear side

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,50-2,60 (2,45-2,65) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1125	9,2+0,1	7,75-7,95	0,35(0,6)			
500	4,2-4,4	0,95-1,35	0,35(0,55)			
800	9,2-9,3		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1125	15,2-17,8	-	-	-	ca. 14	500	4,2-4,4		
	1300	0 - 1,0					100	min. 5,9		
ca. 64	8,2	1190-1200					590-650=2,0			
	4,0	1225-1255				(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2) rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a) rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b) rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6) rev/min 6	cm³/1000 strokes 7	Torque-control travel (5) rev/min 8	Control rod travel mm 9
1125	77,5-79,5 (75,5-81,5)	1190-1200 *	800	73,0-77,0 (71,0-79,0)	100	19,0-21,0 RW min. 140,0		
					100-400 (80-420)			

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

C14

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C14

Port closing and TDC markings

Comb. - No.	° camshaft between port-closing and TDC at control-rod travel 10,5 mm
... 107	15°

C15

C15

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 VOL 4,5 e

2. Edition

En

Testoil-ISO 4113

PES 4 MW 100/320 RS 1102 RQV 300-1100 MW 39-5

0 403 444 107

supersedes 7.84
company Volvo
engine D 45
85 kW

1 - 3 - 4 - 2
0 - 90 - 180 - 270 ± 0,50 (0,75)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90 (2,75-2,95) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0+0,1	11,1-11,3	0,35(0,6)			
300	5,8-5,9	1,3-1,7	0,35(0,55)			
1000	12,0+0,1		0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1200 1350	15,2-17,8 0-1,0				ca. 10	300 100	5,6-5,7 min. 8,1		
ca. 43	11,1 4,0	1140-1150 1210-1240				(3a)	320-650			

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
700	111,0-113,0 (109,0-115,0)	1140-1150*	1000	112,0-116,0 (110,0-118,0)	100 300 100-220	19,0-21,0 mm RW 130,0-140,0 (127,0-143,0) 13,0-17,0 (10,5-19,5) (80-250)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

C16

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C16

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 VOL 4,5 g

3. Edition

En 8.84

PES 4 MW 100/320 RS 1102 RSV 300-1000 MW 1 A 315

0 403 474 001

supersede Volvo company TD 45 engine 84 kW

*At the minimum full-load stop, set a control-rod travel of 12.6-12.7 mm with n = 1000 min/1. At the maximum full-load stop, make the full-load adjustment according to test specifications.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil 40 113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90 (2,75-2,95) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
700*	12,0+0,1	11,1-11,3	0,35(0,6)			
300	5,6-5,7	1,3-1,7	0,35(0,55)			
1000	12,0+0,1		0,55(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 12	300	5,1-5,2		
							300	5,6-5,7		
ca. 52 (2a)	11,0	1040-1050					360-420	=2,0		
	4,0	1055-1085								
	0,3-1,7	1200								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to): rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
700	111,0-113,0 (109,0-115,0)	1040-1050*	1000	112,0-116,0 (110,0-118,0)	300	13,0-17,0 (10,5-19,5)	300	5,6-5,7

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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C17

(4)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 12,7 t 1
1. Edition
En

PE 8 MW 100/720 LS 1117
RQ 300/1000 MW 52
0 403 548 005

supersedes
company KHD
engine F 8 L 413 F 2
150 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20 (3,05-3,25) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	10,7+0,1	9,2-9,4	0,35(0,6)			
300	7,1-7,2	1,1-1,5	0,35(0,55)			
1000	9,5-9,6		0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
520	19,2-20,8	520	20,0	8,5	1045-1060	300	7,1	100	min. 9,1	975	9,5-9,6
1200	0 - 1,0			4,0	1080-1110			300	7,1-7,2	650	10,7-10,8

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
600	92,0-94,0 (90,0-96,0)		1000	87,0-89,0 (84,5-91,5)	100	140,0-150,0 (137,0-153,0)
					300	11,0-15,0 (8,5-17,5)
					100-230	(80-250)

Checking values in brackets

10.84

C18

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Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 12,7 t

1. Edition

En

PE 8 MW 100/720 LS 1117
RQ 300/1000 MW 52-1
0 403 548 009

supersedes
company KHD
engine F 8 L 413 F Z
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20 (3,05-3,25) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	11,4+0,1	10,6-10,8	0,35(0,6			
300	7,5-7,6	1,1-1,5	0,35(0,55)			
1150	10,0+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Checking of slider PRG check (1) rev/min 1	Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3	Control rod travel mm 4	Test specifications (4) Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7	Control rod travel mm 8	Test specifications (5) rev/min 9	Control rod travel mm 10	Torque control (3) rev/min 11	Control rod travel mm 12
550	19,2-20,8	550	20,0	9,0	1195-1210	300	7,5	100	min.9,0	1150	10,0-10,1
				4,0	1240-1270			300	7,5-7,6	650	11,4-11,5
1350	0 - 1,0							350-380	= 2,0	850	10,5-10,8

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever (2) Test oil temp. 40°C (104°F) rev/min 1	cm³/-1000 strokes 2	Control rod stop (3a) rev/min 3	Fuel delivery characteristics (3b) rev/min 4	cm³/-1000 strokes 5	Starting fuel delivery Idle speed (6) rev/min 6	cm³/1000 strokes / Control rod travel mm 7
650	106,0-108,0 (104,0-110,0)		1150	96,0-98,0 (93,5-100,5)	100	130,0-140,0 (127,0-143,0)
					300	11,0-15,0 (8,5-17,5)
					100-230	(80-250)

Checking values in brackets

10.84

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Test Specifications Fuel Injection Pumps and Governors

② WPP 001/4 KHD 12,7 t 2
1. Edition

En

Test:ISO 4113

PE 8 MW 100/720 LS 1117
RQ 300/1150 MW 53
0 403 548 006
1- 8- 7- 2 - 6 - 5 - 4 - 3
0-45-90-135-180-225-270-315

supersedes –
company KHD
engine BF 8 L 413 FST
206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel injection Pump Settings

Port closing at prestroke 3,10-3,20 (3,05-3,25) mm (from BDC) RW-9-12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	13,3+0,1	12,3-12,5	0,35(0,6)			
300	7,5-7,6	1,1-1,5	0,35(0,55)			
1150	12,3+0,1		0,5 (0,7)			
400	12,4+0,1					

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	11,3	1195-1210	300	7,5	100	min.9,1	1150	12,3-12,4
				4,0	1230-1260			300	7,5-7,6	800	13,0-13,3
										650	13,3-13,4
1350	0 - 1,0										

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
LDA 800	0,8 bar 123,5-125,5 (121,5-127,5)		LDA 1150	0,8 bar 118,0-120,0 (115,5-122,5)	100	140,0-150,0 (137,0-153,0)
			LDA 400	0 bar 96,0-98,0 (93,5-100,5)	300	11,0-15,0 (8,5-17,5)
					100-230	(80-250)

Checking values in brackets

10.84

C20

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C20

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure KHD 12,7 t 2

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
LS 1117 with MW 53	0,8		13,3 - 13,4
		0,19	13,0 - 13,1
		0,13	12,6 - 12,7
		0	12,4 - 12,5

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 13,4 d
1. Edition
En

Testoil-ISO 4113

PE 8 MW 100/720 LS 1117
RQ 300/1075 MW 53-1
0 403 548 008

supersedes_
company KHD
engine BF 8 L 513 T
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20 (3,05-3,25) mm (from BDC) RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	13,2+0,1	12,3-12,5	0,35(0,6)			
300	6,7-6,8	1,6-2,0	0,35 (0,55)			
1075	11,2+0,1		0,5 (0,7)			
400						

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	19,2-20,8	550	20,0	10,2	1120-1135	300	6,7	100	min. 8,3	600	13,2-13,3
				4,0	1155-1185			300	6,7-6,8	640	13,2-13,3
										1040	11,2-11,3
1250	0 - 1,0									1075	11,2-11,3

Torque-control travel on flyweight assembly dimension a = mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel mm / cm³/1000 strokes 7
LDA 600	0,8 bar 123,5-125,5 (121,5-127,5)		LDA 1075	0,8 bar 114,0-116,0 (111,5-118,5)	100	140,0-150,0 (137,0-153,0)
			LDA 400	0 bar 96,0-98,0 (93,5-100,5)	300	16,0-20,0 (13,5-22,5)
					100-230	(80-250)

Checking values in brackets

10.84

C22

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C22

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure KHD 13,4 d

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
LS 1117 with MW 53-1	0,8	0,25	13,2 - 13,3 13,1 - 13,2 11,4 - 11,6

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 20,9 r
1. Edition

En

PE12P 100 A 520/4 LS 823 RQV 250-1200 PA 668-3

supersedes
company MAN
engine D 2542 ME

Komb.-Nr. 0 401 840 093
1 - 5-9- 8 - 3 -4 -11 - 10 - 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Tested ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 3,1-3,2 ~~(3,05-3,15)~~ mm (from BDC) Zyl.12; RW = 9,0- 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	13,8+0,1	10,8-11,0	0,35(0,6			
250	10,4+0,1	1,9-2,5	0,35(0,55)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1240	15,2-17,8	-	-	-	ca.18	100	min.12,0	250	1,2-1,3
							250	10,4-10,6	450	2,8-3,2
ca.65	12,8	1240-1250							950	6,0-6,2
	4,0	1305-1355							1200	8,1
	1500	0 - 1,0				290-395 ③a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed ②b ④a rev/min 3	Fuel delivery characteristics high idle speed ⑤a ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point ⑥ rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
1200	108,0-110,0 (106,0-112,0)	1240-1250*	-	-	-	-	-	-
					250	19,0-25,0 (16,5-27,5)		

Checking values in brackets

* 1 mm less control rod travel than col 2

9.84

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Test Specifications Fuel Injection Pumps and Governors ①

WPP 001/4 MAN 11,1 q 1
5. Edition
En

PES 6 P 110 A 720 LS 375 RQV 250-1100 PA 373 DR
Komb.-Nr. 0 402 046 180

supersedes 5.84
company MAN
engine D 2566 MTF
206 kW (280 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 - 3,1 (2,95-3,15) mm (from BDC) Zyl. 6: RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,4+0,1	14,6-14,9	0,4(0,75)			
250	7,3-7,5	1,0-1,5	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1140	15,2-17,8	-	-	-	ca. 13	100	min.8,9	325	1,7-2,2
							250	7,3-7,5	900	6,2-6,4
ca.65	11,4	1140-1150					520-	580=2,0	1100	8,0-8,2
	4,0	1225-1255								
						390-510 (3a)				

Torque control travel a = 0,9 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed (2b) limitation intermediate speed (4a) rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 146,0-149,0 (143,5-151,5)	1140-1150*	LDA 500	0,2 bar 123,0-127,0 (120,0-130,0)	100	225,0-245,0 (221,0-249,0)	1100	12,4+0,[illegible]
							700	13,3+0,[illegible]
							900	13,0+0,2
LDA 700	0,7 bar 157,0-161,0 (154,0-164,0)		LDA 500	0 bar 110,0-113,0 (107,5-115,5)	250	10,0-15,0 (7,5-17,5)	1000	12,5+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure = in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PES 6 P..LS 375 + RQV..PA 373 DR	0,70		13,3-13,4
		0	11,3-11,4
		0,20	11,8-11,9
		0,32	12,6-12,8

Notes

(1) when n = rev/min and gauge pressure = bar (maximum full-load control rod travel)

(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 19,1 h1
1. Edition
En

PE 12 P 100 A 320 LS 826 RQV 350-1250 PA 251 R
Komb.-Nr. 0 401 840 038

supersedes
company: Daimler-Benz
engine OM 404 ECE

1-5 -9 -8 - 3 - 4 - 11- 10-2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315 ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 3,2.3,3 (3,15-3,35) mm (from BDC) Zyl. 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1230	12,0+0,1	10,5-10,7	0,3(0,6)			
350	7,6-7,8	1,0-1,5	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
ca.68	1250	15,2-17,8	-	-	-	ca.16	100	min.9,3	300	0,4-1,4
							350	7,6-7,8	620	2,6-3,6
ca.66	11,0	1280-1290							930	4,5-5,0
	4,8	1355-1385								
	1500	0-1,0				350-550 (3a)			1250	7,8

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1230	105,0-107,0 (103,0-109,0)	1280-1290*	1230	77,0-79,0 (74,5-81,5) **	100	110,0-130,0 (106,0-134,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

** Set at the reduced-delivery stop.

9.84

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93

Test Specifications Fuel Injection Pumps and Governors (1)

WPP 001/4 MB 19,1 h
3. Edition

En

PE12P100A320 LS 826 ROV 350-1250 PA 378 R

Komb.-Nr. 0 401 840 042

supersedes 1.81
company Daimler-Benz
engine OM 404 ECE
316 kW

1- 5-9- 8 - 3 - 4 - 11-10 - 2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° ±0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 3,2-3,3 (3,15-3,35) mm (from BDC) Zyl. 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1230	12,0+0,1	10,7-10,9	0,3(0,6)			
350	8,3-8,5	0,9-1,4	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
ca.68	1250	15,2-17,8	-	-	-	ca.16	100	min.10,0	300	0,9-1,1
ca.66	11,0	1280-1290					350	8,3-8,5	620	3,6-3,9
	4,8	1355-1385							930	5,3-5,6
	1500	0 - 1,0				400-700 (3a)			1250	8,3

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
1230	107,0-109,0 (105,0-111,0)	1280-1290*	1230	78,0-80,0 (76,0-82,0) **	100	120,0-140,0 (116,0-144,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

** Set at the reduced-delivery stop.

9.84

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D4

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MAN 20,9 a 2

1. Edition

En

PE 12 P 100 A 520/4 LS 834 RQV 250-750 PA 668-1

Komb.-Nr. 0 401 840 091

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

supersedes
company MAN
engine D 2542
185 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,1-3,2 (3,05-3,25) mm (from BDC) Zyl. 12; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,1+0,1	8,3-8,5	0,35 (0,6)			
250	6,4-6,6	1,3-1,9	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	870	15,2-17,8	-	-	-	ca. 11	100	min.8,0	250	1,2-1,3
ca. 58	11,2	1190-1200					250	6,4-6,6	600	4,3-4,7
	4,0	850-880							750	6,5
	1000	0-1,0				290-395 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
750	83,0-85,0 (81,0-87,0)	1190-1200*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

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D5

Test Specifications Fuel Injection Pumps and Governors

(1) WPP 001/4 MAN 20,9 m 2
1. Edition

En

PE 12 P 120 A 520 LS 836-1 RQV 250-1150 PA 668

1 - 5 - 9 - 8 - 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0 - 15- 60- 75-120-135-180-195-240-255-300-315°±0,5°(±0,75°)
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes –
company MAN
engine D 2542 MLE
478 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 - 3,1 (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,3+0,1	17,5 - 17,7	0,5(0,9)			
250	6,0-6,2	2,1 - 2,7	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1175	15,2-17,8	-	-	-	ca. 11	100	min. 7,6	250	1,2-1,3
ca. 64	9,3	1190-1200					250	6,0-6,2	550	3,5-4,0
	4,0	1265-1295							950	6,6-6,8
	1400	0 - 1,0				290-395			1150	8,3
						(3a)				

Torque control travel a = – mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1150	175,0-177,0 (172,0-180,0)	1190-1200*	-	-	100	190,0-210,0 (186,0-214,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

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Test Specifications Fuel Injection Pumps and Governors

1 UPP 001/4 MAN 20,9 m 3

1. Edition

En

PE 12 P 120 A 520 LS 836-1 RQV 250-1150 PA 670
1 - 5 - 9 - 8 - 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0 - 15- 60- 75-120-135-180-195-240-255-300-315°±0,5°(±0,75°)
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes_
company: MAN
engine D 2542 MLE
456 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 - 3,1 (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,9+0,1	18,5 - 18,9	0,5(0,9)			
250	6,5-6,7	2,2 - 2,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1170	15,2-17,8	-	-	-	ca. 11	100	min. 8,1	250	1,2-1,3
							250	6,5-6,7	550	3,5-4,0
ca. 64	9,9	1190-1200							950	6,6-6,8
	4,0	1270-1300							1150	8,3
	1400	0 - 1,0				290-395 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 185,0-189,0 (182,0-192,0)	1190-1200*	LDA 1150	0 bar 161,0-165,0 (158,0-168,0)	100	200,0-220,0 (196,0-224,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
PE 12 P..LS 836-1 + RQV..PA 670	0,70		10,9 - 11,0
		0	9,8 - 9,9
		0,22	10,5 - 10,6
		0,15	10,0 - 10,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 20,9 d 1

1. Edition

En

PE 12 P 110 A 520 LS 839 RQV 250-1150 PA 670

Komb.-Nr. 0 401 840 095

supersedes–

company: MAN

engine: D 2542 MTE 386 kW

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12

0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC). Zyl. 12: RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,3+0,1	14,2-14,5	0,4(0,75)			
250	6,8-7,0	1,4-1,9	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1170	15,2-17,8	-	-	-	ca. 12	100 250	min.8,4 6,8-7,0	250 550 950 150	1,2-1,3 3,5-4,0 6,6-6,9 8,3
ca. 65	11,3 4,0 1450	1190-1200 1295-1325 0-1,0				③a				

Torque control travel a = — mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed ②b ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 142,0-145,0 (139,5-147,5)	1190-1200*	LDA 500	0 bar 98,0-101,0 (95,5-103,5)	100	150,0-170,0 (146,0-174,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

D9

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel – diminution / difference mm (1)
PE 12 P..LS 839 +RQV..PA 670	0,70	0 0,28 0,18	12,3-12,4 10,5-10,6 11,8-11,9 10,9-11,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 VOL 10,0 q 3
1. Edition

En

PE 6 P 110 A 320 RS 3108
Komb.-Nr. 0 401 846 781

RQV 325-1100 PA 232-1

supersedes_
company: Volvo-BM
engine: EM/TD 100 G

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,5+0,1	14,7-14,9	0,4(0,8)			2,5±0,1 (2,2-2,9)
325	4,0-4,2	1,7-2,1	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 13	100	min.5,5	300	1,5-1,6
							325	4,0-4,2	570	3,5-4,1
ca. 46	10,5	1140-1150					340-400	= 2,0	830	5,4-5,6
	4,0	1210-1240							1100	8,0
	1350	0 - 1,0				(3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a) rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 147,0-149,0 (144,0-152,0)	1140-1150 *	LDA 700	0 bar 100,0-102,0 (97,0-105,0)	100	170,0-200,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

D11

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
PE 6 P..RS 3108 + RQV ..PA 232-1	0,90	0 0,53 0,37	11,5-11,6 9,1-9,2 10,9-11,0 9,6-9,8

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

D12

D12

Ed

Test Specifications Fuel Injection Pumps and Governors

(1) WPP 001/4 BAO 31,8 b
1. Edition

En

PE 12 P 130 A 120 RS 3127 RQV 350-900 PA 618
1-12-9-4-5-8-11-2-3-10-7-6
0-45-60-105-120-165-180-225-240-285-300-345° ± 0,5° (±0,75°)
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
compatible Baudouin
engine 12 P 15-2 AN-SR
Kom.-Nr. 0 401 830 708

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test-No. 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	12,2+0,1	30,9-31,2	0,6 (1,0)			
350	4,8-5,0	2,0-2,6	1,6 (1,4)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	940	15,2-17,8	-	-	-	ca. 30	100	min.6,4	325	1,1-1,3
							350	4,8-5,0	500	3,1-3,8
ca. 62	11,2	940-950							750	5,0-6,4
	4,0	1005-1035				350-450			900	8,0
	1150	0 - 1,0				(3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2) rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a) rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b) rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6) rev/min 6	cm³/1000 strokes 7	Torque-control travel (5) rev/min 8	Control rod travel mm 9
900	309,0-312,0 (304,0-316,0)	940-950 *	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

D13

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D13

Test Specifications Fuel Injection Pumps and Governors

(1A) WPP 001/4 SCA 14,2 c
4. Edition

En

PE 8 P 120 A 920/4 LS 7002 RSV 350-1100 P 1/484
1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je 45° ± 0,5° (±0,75°)

supersedes 10.83
company Saab-Scania
engine DS 14 40, 42
DSI 14 40, 41
Komb.-Nr. 0 402 678 800

Values only applx to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

See page 2 !

Testoil-ISO 4113

A. Fuel Injection Pump Settings

from FD 141: 5,0 - 5,1 (4,95-5,15) to FD 052: 4,4 - 4,5 (4,35-4,55)
Port closing at prestroke mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	18,7 - 18,9	0,6(0,9)			3,3 ± 0,1
350	4,4-4,6	1,4 - 1,8	0,3(0,6)			(3,0 - 3,5) **

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.30	350	4,0	-	-
	x	= 6,0					350	4,4-4,6		
ca.66	12,2	1090-1100					440-500	=2,0		
(2a)	4,0	1170-1200								
	1300	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to): rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
700	187,0-189,0 (184,0-192,0)	1140-1150*	1000	183,0-191,0 (181,0-193,0)	100	240-290,0 =20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on Aug. 19, 1983
- Start of fuel delivery-engine: DS 14-18° before TDC; DSI 14-17° before TDC
- Firing sequence, engine : 1-5-4-2-6-3-7-8

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

Test Specifications Fuel Injection Pumps and Governors

(1) UPP 001/4 SCA 14,2 g
1. Edition
En

PE 8 P 120 A 920/4 LS 7002 RQV 275-1000 PA 547-3

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je 45°±0,5° (±0,75°)
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes
company Scania
engine DS 1406
LKW 142-Kran
Komb.-Nr. 0 402 648 810

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 5,0 - 5,1 (4,95-5,15) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	18,7 - 18,9	0,6(0,9)			3,3 ± 0,1
275	4,4-4,6	1,0 - 1,4	0,3(0,6)			(3,0 - 3,5) **

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1000	15,2-17,8	-	-	-	ca. 8	100	min.5,9	250	1,5-1,7
							275	4,4-4,6	500	3,6-4,0
ca. 60	12,2	1040-1050					320-380	= 2,0	750	5,2-5,5
	4,0	1190-1220							1000	7,7
	1250	0 - 1,0				(3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2) rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a) rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b) rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel (5) rev/min 8	Control rod travel mm 9
LDA 800	0,9 bar 187,0-189,0 (184,0-192,0)	1040-1050*	LDA 1000	0,9 bar 183,0-191,0 (181,0-193,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 137,0-141,0 (135,0-143,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

D16

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure = in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PE 8 P..LS 7002 + RQV..PA 547-3	0,90		13,2 - 13,3
		0	11,3 - 11,4
		0,35	12,8 - 12,9
		0,23	11,9 - 12,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

SCA 11,0 y 1

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 2.11. 1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-4-2-6-3-7-8

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

D17

En Dn7

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 SCA 11,0 v 3

1. Edition

En

PE 6 P 120 A 720 RS 7004 RQ 900 PA 528-2

supersedes –
company Saab-Scania
engine DN 11
Komb.-Nr. 0 402 646 814

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 5,0-5,1 (4,95-5,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
850	10,6+0,1	16,2 - 16,4	0,6(0,9)			3,3±0,1 (3,0-3,5) **

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9-3,1 mm.

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	9,6 4,0 1000	900-905 935-949 0-1,0	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = – mm

Speed regulation At 900-905 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
850	162,0-164,0 (159,0-167,0)	-	-	-	100	240,0-290,0 = 20,0-21,0 mm RW
			High idle speed	Dispersion: 4,0 (7,0)		

Checking values in brackets

D18

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Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 5,7 p
3. Edition

En

PES 6 A 80 D 410 RS 2085
Komb.-Nr. 0 400 876 211

RSV 350-1400 A 5 B 716 DL

supersedes 5.84
company Daimler-Benz
engine OM 352
93 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
1400	8,3-8,4	5,7-5,8	0,2(0,35)			
350	5,4-5,6	0,9-1,5	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	lose		**	1400	8,3-8,4
	x	= 6,0							500	9,1-9,2
							100	min.19,0	1000	8,5-8,8
ca. 70	7,3	1440-1450					350	5,4-5,6		
(2a)	4,0	1495-1515					500-560	= 2,0		
	1650	0,7-1,7								

Set idle-speed auxiliary spring at 2 mm control-rod travel.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limiter: Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1400	56,5-57,5 (55,0-59,0)	1440-1450*	1000	54,0-56,0 (52,5-57,5)	100	78,0-88,0 (75,0-91,0)	-	-
			800	52,5-54,5 (51,0-56,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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D19

D19

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 RAB 9,7 a 3
1. Edition

En

PES 6 A 95 D 410 RS 2108 U RQ 200/1100 AB 647 L
Komb.-Nr. 0 400 846 247

supersedes
company Raba
engine –

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,7-1,8 (1,65-1,85) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	11,0+0,1	10,7-10,9	0,35 (0,6			
200	5,9-6,1	0,9-1,6	0,35 (0,55)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,4-16,4	600	15,9	10,0 4,0	1145-1160 1185-1215	200	6,0	100 200 345-385	min. 7,5 5,9-6,1 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1145-1160 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever (2) Test oil temp. 40°C (104°F)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
1100	107,0-109,0 (105,0-111,0)	-	700	100,5-103,5 (98,0-106,0)	100	19,5-21,0 mm RW
			500	97,5-100,5 (95,0-103,0)	200	6,0 mm RW

Checking values in brackets

11.84

D20

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Test Specifications Fuel Injection Pumps and Governors

40

(1A) WPP 001/4 MB 8,7i

5. Edition

En

Testoil·ISO 4113

PE 6 A 90 D 410 RS 2124 RSV 700-1150 A 1 B 665 L
A 1 C 665 L

Komb.-Nr. 0 400 676 117

supersedes 8.80
company Daimler-Benz
engine OM 360
125 kW (170 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,10-2,30) 2,15-2,25 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,6-10,7	8,8 - 8,9	0,3(0,45)			
700	5,6-5,8	1,8 - 2,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	900	0,3-1,0	-	-	-	ca.31	700	5,2	-	-
ca.53 (2a)	9,6 4,0 1250	1160-1165 1184-1201 0,3-1,7					700 690-750	5,1-5,3 = 2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1150	87,5 - 88,5 (85,5 - 90,5)	1160-1165*	-	-	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

D21

11.84

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D21

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 8,7 c 3
2. Edition

En

PE 6 A 90 D 410 RS 2124 X RQ 300/1275 AB 658 DL
Komb.-Nr. 0 400 646 151

supersedes 8.82
company Daimler-Benz
engine OM 360
125 kW (170 PS)

Test-Hist

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,1 - 2,3) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	9,3-9,4	7,7 - 7,8	0,3(0,45)			
300	6,1-6,3	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	8,3 4,0	1295-1310 1345-1375	300	5,0	100 300 350-390 475	min. 6,5 4,9-5,1 = 2,0 max. 1,0	1250 500 850 1040	9,3-9,4 10,1-10,2 9,8-10,0 9,4-9,7

Torque-control travel on flyweight assembly dimension a = 0,4 mm

Speed regulation: At 1295-1310 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
1250	77,0-78,0 (75,0-80,0)	450	500 800	69,0-72,0 (67,0-74,0) 77,0-80,0 (75,0-82,0)	100	15,3-21,0 mm RW

Checking values in brackets

11.84

D22

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D22

(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 i 4

1. Edition

En

PES 6 A 80 C 410 RS 2194 X D RQV 300-1425 AB 615 D

supersedes

company Daimler-Benz

engine OM 352
66 kW (90 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testcil-SD 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,9-4,3	0,3			
	6	1,2-2,0				
200	9	1,8-2,6				

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
ca. 66	1425	16,0-19,4	-	-	-	ca. 10	200	6,0-7,4	250	0,9-1,1
	1550	8,2-13,4					400	3,5-5,2	640	3,3-3,7
	1650	1,4-8,0					480	2,7-3,8	1030	6,0-6,2
	1700	0-5,2					600	1,4-2,8	1425	8,7
	1790	0					770	0		
						(3a)				

Torque control travel a = 1,7 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2) rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a) rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b) rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel (5) rev/min 8	Control rod travel mm 9
1400	38,5-40,5	1505-1515*	1000	35,5-38,5	100	72,5-82,5	1425	0
	(39,5-41,5)		800	36,0-39,0			600	1,6-1,8
			500	37,7-41,2				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

D23

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Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 i
3. Edition

En

PES 6 A 80 C 410 RS 2194 Y D RQV 300-1475 AB 621 D

superseded 10.78
company Daimler-Benz
engine OM 352
81 kW (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,4 - 4,8	0,3			
	6	1,8 - 2,6				
200	9	2,4 - 3,4				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
ca. 66	1475	16,0-19,0	-	-	-	ca.10	100	6,7-8,0	250	0,8-1,1
	1600	8,5-13,5					300	4,8-6,5	660	3,8-4,0
	1700	1,6-8,5					500	2,5-3,7	1070	5,7-5,9
	1800	0 - 3,0					600	1,3-2,7	1475	8,9
	1850	0					770	0		
						(3a)				

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1450	45,5-47,5 (44,5-48,5)	1505-1515*	1000	45,5-48,5	100	72,5-82,5	1475	0
			800	45,0-48,0			600	1,1-1,3
			500	41,0-44,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

D24

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D24

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 i 1
1. Edition

PES 6 A 80 C 410 RS 2194 Y D RQV 300-1475 AB 622 D

supersedes
company Daimler-Benz
engine OM 352
81 kW (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,4-4,8	0,3			
	6	1,8-2,5				
200	9	2,4-3,4				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
ca.66	1475	16,0-19,0	-	-	-	ca. 10	100	6,7-8,0	250	0,8-1,1
	1600	8,5-13,5					300	4,8-6,5	660	3,8-4,0
	1700	1,6-8,5					500	2,5-3,7	1070	5,7-5,9
	1800	0 - 3,0					600	1,3-2,7	1475	8,9
	1850	0					770	0		
						(3a)				

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2) rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a) rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b) rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel (5) rev/min 8	Control rod travel mm 9
1450	45,5-47,5	1505-1515*	1000	45,5-48,5	100	72,5-82,5	1475	0
	(44,5-48,5)		800	45,0-48,0			600	1,1-1,3
			500	41,0-44,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

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(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 i 2
1. Edition

En

PES 6 A 80 C 410 RS 2194 Z RQV 300-1475 AB 626 D
D

supersedes
company Daimler-Benz
engine OM 352
74 kW (100 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	4,4-4,8	0,3			
	6	1,8-2,6				
200	9	2,4-3,4				

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
ca. 66	1475	16,0-19,0	-	-	-	ca. 10	100	6,7-8,0	250	0,8-1,1
	1600	8,5-13,5					300	4,8-6,5	660	3,8-4,0
	1700	1,6-8,5					500	2,5-3,7	1070	5,7-5,9
	1800	0 - 3,0					600	1,3-2,7	1475	8,9
	1850	0					770	0		
						(3a)				

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2) rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a) rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b) rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel (5) rev/min 8	Control rod travel mm 9
1450	41,0-43,0 (40,0-44,0)	1505-1515 *	1000	38,5-41,5	100	72,5-82,5	1475	0
			800	39,5-42,5			600	1,1-1,3
			500	36,0-39,5				

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

E2

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E2

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 OMB 4,4 c 1
2. Edition
En

PES 4 A 90 D 410 RS 2195 RQ 250/1200 AB 849 L

Komb.-Nr. 0 400 844 057

superseded 6.83
company: OM Brescia
engine: CO 3 D

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,9+0,1	8,0 - 8,1	0,3(0,45)			
250	7,4-7,6	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700 VH=max. 46°	15,6-16,3	700	16,0	10,0 4,0	1245-1260 1335-1365	250	7,5	100 250 470-510	min.8,9 7,4-7,6 = 2,0	1200 700	10,9-11,0 10,9-11,1

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation: At 1245-1260 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
1200	79,5-80,5 (77,5-82,5)	800	800	74,5-77,5 (72,5-79,5)	-	-

Checking values in brackets

11.84

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E3

②

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 OMB 4,4 c 2

2. Edition

En

PES 4 A 90 D 410 RS 2195 Z RQ 250/1200 AB 849 L

Komb.-Nr. 0 400 844 063

supersedes 6.84

company: OM-Brescia

engine

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	10,8+0,1	6,8-6,9	0,3(0,45)			
250	8,4-8,6	1,0-1,6	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	15,6-16,4	650	16,0	9,8 4,0	1245-1260 13 5-13 5	250	6,0	100 250 425-465	min.7,5 5,9-6,1 =2,0	-	-

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation: At 1245-1260 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
1200	68,0-69,0 (66,0-71,0)	-	800	58,0-62,0 (56,0-64,0)	100	16,3-17,0 mm RW

Checking values in brackets

11.84

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E4

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 8,3 k 4

1. Edition

En

PE 6 A 95 D 410 RS 2525/X RQ 225/1200 AB 1007 L

Komb.-Nr. 0 400 646 252/X

supersedes company DAF engine DHB 825

Specifications apply to test tubing 1 680 750 015

Port closing difference between control-rod travel 9 and max. 0,7 - 0,8 mm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 (1,95-2,15) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	7,5-7,9	0,3(0,6)			
1000	9	3,2-3,9	-			
200	9	1,3-2,1	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,5-20,8	650	20	1200	19,7-20,0	250	8,6	100	9,8-11,7	-	-
VH =	max. 49°			1280	6,5-14,0			250	7,3-9,9		
				1310	0 -10,6			350	4,2-7,0		
				1390	max. 1,0						

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation: At 1280 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
LDA 1000	0,7 bar 92,5-94,5 (89,0-98,0)	600	LDA 600	0 bar 79,0-82,0 (74,0-87,0)	100	120-130 = 19,5-21,0 mm RW

Checking values in brackets

10.84

E5

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E5

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution / difference mm (1)
PE6A..RS2525/X + RQ..AB1007L	0,70	0,24 0	Full-load control-rod travel Full-load control rod travel - 0,1 mm Control-rod travel aspiration

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 8,3 k 16

1. Edition

En

PE 6 A 95 D 410 RS 2525/Y RQ 225/1200 AB 1007 L

Komb.-Nr. 0 400 646 252/Y

Specifications apply to test tubing 1 680 750 015

supersedes –
company DAF
engine DU 825

Port closing difference between control-rod travel 9 and max. 0,7 - 0,8 mm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 (1,95-2,15) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12	7,5-7,9	0,3(0,6)			
1000	9	3,2-3,9	-			
200	9	1,3-2,1	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Checking of slider PRG check ① rev/min 1	Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3	Control rod travel mm 4	Test specifications ④ Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7	Control rod travel mm 8	Test specifications ⑤ rev/min 9	Control rod travel mm 10	Torque control ③ rev/min 11	Control rod travel mm 12
650	19,2-20,8	650	20,0	1200	19,7-20,0	250	8,6	100	9,8-11,7	-	-
VH =	max. 49°			1280	6,5-14,0			250	7,3-9,9		
				1310	0,0-10,6			350	4,2-7,0		
				1390	max. 1,0						

Torque-control travel on flyweight assembly dimension a = – mm

Speed regulation: At 1280 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F) rev/min 1	cm³/-1000 strokes 2	Control rod stop ③a rev/min 3	Fuel delivery characteristics ③b rev/min 4	cm³/-1000 strokes 5	Starting fuel delivery Idle speed ⑥ rev/min 6	cm³/1000 strokes / Control rod travel mm 7
LDA 1000	0,7 bar 102-104 (100-106)	600	LDA 600	0 bar 79-82 (76,5-84,5)	100	120-130 = 19,5-21,0 mm

Checking values in brackets

10.84

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E7

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 600 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
PE6A..RS2525/Y + RQ..AB1007 L	0,70	0,24 0	Full-load control-rod travel Full-load control rod travel - 0,1 mm Control-rod travel aspiration

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 8,3 k 5

1. Edition

En

PE 6 A 95 D 410 RS 2525/Z RQ 225/1200 AB 1007 L

Komb.-Nr. 0 400 646 252/Z

supersedes –
company DAF
engine DHR 825 E

Specifications apply to test tubing 1 680 750 015

Port closing difference between control-rod travel 9 and max. 0,7 - 0,8 mm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

TESTCHECK 413

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 (1,95-2,15) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,8+0,2	11,2-11,4	0,3(0,6)			
225	5,7-5,9	0,7-1,1	0,3(0,55)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,2-20,8	650	20	11,9	1230-1245	225	5,8	225	5,7-5,9	-	-
VH =	max. 46°			4,0	1315-1345			340-380 = 2,0			
				1390	max. 1,0			100	min.7,2		

Torque-control travel on flyweight assembly dimension a = – mm

Speed regulation: At 1230-1245 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
LDA 1000	0,7 bar 111,5-113,5 (109,5-115,5)	600	LDA 600	0 bar 84,5-87,5 (82,0-90,0)	100	120-130 = 19,5-21,0 mm RW

Checking values in brackets

10.84

E9

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E9

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1000 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
PE6A..RS2525/Z + RQ..AB1007/L	0,70	0,30 0	12,8-13,0 12,2-12,3 11,5-11,6

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 8,3 K3

1. Edition

En

PE6A95 D 410 RS 2525/Z RSV 250-1200 A5B 2013 D

supersedes –
company DAF
engine DHR 825 E

Komb.-Nr. 0 400 676 152/Z

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testch-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 (1,95-2,15) mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,8+0,2	11,2-11,4	0,3 (0,6)			
250	6,0-6,2	0,7-1,1	0,3 (0,6)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800 X =	0,3-1,0	-	-	-	ca.21	250	5,6	400	13,1-13,2
							250	6,0-6,2	300	13,3-13,8
ca.55 (2a)	11,9	1230-1240					595-655	=2,0		
	4,0	1330-1360								
	1490	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle (5): rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
LDA	0,7 bar	1230-1240*	LDA	0 bar				
1000	111,5-113,5		600	81,5-87,5	100	120,0-130,0	250	6,1
	(109,5-115,5)			(82,0-89,0)		= RW 19,5-21,0 mm		

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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E11

EAA

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1000 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PE6A..RS 2525/Z + RSV..A5B 2013 D	0,70	0,30 0	12,8 - 13,0 12,3 - 12,4 11,5 - 11,6

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

E12

Ed E12

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 6,2 K 2
1. Edition

En

PE 6 A 85 D 320 RS 2546/Z RSV 250-1200 A1B 2025 R
Komb.-Nr. 0 400 676 154/Z
Specifications apply to test tubing 1 680 750 015

supersedes -
company DAF
engine DD 575

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing difference between control-rod travel 9 and max. = 0,6 - 0,7 mm

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
1000	9	4,4 - 4,7	0,3 (0,5)			
200	9	2,5 - 3,2	0,2 (0,45)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.72	1200 1240 1280	16,0 11,2 5,7	without auxiliary spring			ca.26	250	6,0	400 300	0 0,1-0,5
(2a)	1260 1300 1400	7,0-10,0 2,2-5,4 0,3-1,7	with auxiliary spring				100 300	19,0+2,0 3,8-4,8		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat Note changed to ..) rev/min 3	(3a) Fuel delivery characteristics rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle (5) rev/min 6	cm³/1000 strokes 7	(4a) Idle stop rev/min 8	Control rod travel mm 9
1000	44,0-47,0 (40,5-50,5)		-	-	100	115,0-125,0 = 19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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Testi-ISO 4113

(1A)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 DAF 6,2 i 1

4. Edition

En

PF 6 A 90 D 320 RS 2547 RSV 250-1200 A5B 779 R

Komb.-Nr. 0 400 676 141
0 400 676 153

supersedes 3.83
company DAF
engine DT 615

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2-2,3 (2,15-2,35) mm (from BDC) RW 9

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8+0,1	7,1 - 7,2	0,3(0,45			
250	5,9-6,1	0,8 - 1,2	0,2(0,4)			
			Port closing difference between control-rod travel 9 and max. = 2,5° - 3,5° camshaft			

Adjust the fuel delivery from each outlet according to the values in [ ].

Testoil-ISO 4113

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.22	250	5,5	1000	10,8+0,1
	x	= 3,25							300	11,2+0,5
							250	5,9-6,1	400	11,0+0,2
(5) ca.54	9,8	1240-1250					330-390	=2.0		
	4,0	1280-1310								
	1450	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat.: Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 71,5 - 72,5 (69,5 - 74,5)	1240-1250*	LDA 600	0 bar 51,5 - 53,5 (49,5 - 55,5)	100	135,0-145,0 / 19,5 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.84

E14

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1000 rev/min decreasing / increasing XXXXXXX pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel mm (1) diminution / difference
.. RS 2547 + RSV .. A5B 779 R	0,7 bar		10,8 - 10,9
		0,25	10,6 - 10,7
		0,21	10,1 - 10,4
		0	9,8 - 10,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 DAF 6,2 i 4

1. Edition

En

PE 6 A 90 D 320 RS 2547/y RSV 250-1200 A 5 B 779 R

Komb.-Nr. 0 400 676 153/y

supersedes –
company DAF
engine DT 615

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testschild 113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2-2,3 (2,15-2,35) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	10,8+0,1	7,1-7,3	0,3 (0,5)			
250	5,9-6,1	0,9-1,3	0,2(0,45)			
			Port closing difference between control-rod travel 9 and max. =		0,6 - 0,7 mm	

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
	800	0,3-1,0	-	-	-	ca.22	250	5,5	400	11,0-11,1
loose	X =						250	5,9-6,1	300	11,2-11,7
ca.54 (2a)	9,8	1240-1250					330-390	2,0		
	4,0	1280-1310								
	1490	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limiter: Note changed to rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 71,0-73,0 (69,5-75,5)	1240-1250*	LDA 600	0 bar 51,5-53,5 (49,0-56,0)	100	135,0-210,0 RW=19,5-21,0 mm	250	6,0

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1000 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
PE6A..RS 2547/y + RSV..A5B 779 R	0,70		10,8 - 10,9
		0,25	10,6 - 10,7
		0,21	10,1 - 10,4
		0	9,8 - 10,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 6,2 i 5

1. Edition

En

PE 6 A 90 D 320 RS 2547/Z RQ 250/1200 AB 1022 R

Komb.-Nr. 0 400 646 256/Z

supersedes company DAF engine DT 615

Specifications apply to test tubing 1 680 750 015

Port closing difference between control-rod travel 9 and max. = 0,6 - 0,7 mm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testöl ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2-2,3 (2,15-2,35) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8+0,1	7,1-7,3	0,3(0,5)			
600	9,8+ ,2	5,2-5,4	0,4(0,55)			
250	6,9+0,2	1,2-1,6	0,2(0,45)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	19,2-20,8	650	20,0			250	8,5	100	min.10,0	-	-
VH =	max. 46°			9,8	1245-1265			250	8,4-8,6		
				4,0	1340-1370			425-465	=2,0		
				1500	max. 1,0						

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation At 1245-1265 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
LDA 1000	0,7 bar 71-73 (69,5-74,5)	600	LDA 600	0 bar 51,5-53,5 (49,0-56,0)	100	135-145 = 19,5-21,0 mm RW

Checking values in brackets

10.84

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1000 rev/min decreasing/increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure - bar	Measurement Gauge pressure - bar	Control rod travel - diminution difference mm (1)
PE6A..RS2547/Z + RQ..AB 1022 R	0,70		10,8-10,9
		0,20	10,6-10,7
		0,12	9,9-10,1
		0	9,8-10,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

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En Eng

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 6,2 i
8. Edition
En

Testoil-ISO 4113

PE 6 A 90 D 320 RS 2547 RQ 250/1200 AB 1022 R

Komb.-Nr. 0 400 646 256

supersede 2.83
company DAF
engine DT 615
113 kW (153 PS)

Specifications apply to test tubing 1 680 750 015

Port closing difference between control-rod travel 9 and max. = 2,5° - 3,5° camshaft

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,20-2,30 (2,15-2,35) mm (from BDRW = 8,5 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8+0,1	7,1 - 7,3	0,3(0,45)			
250	6,9-7,1	1,1 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ① rev/min 1	Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3	Control rod travel mm 4	Test specifications ④ Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7	Control rod travel mm 8	Test specifications ⑤ rev/min 9	Control rod travel mm 10	Torque control ③ rev/min 11	Control rod travel mm 12
650	19,6-20,4	650	20,0	9,8	1245-1265	250	8,5	100	min. 10,0	-	-
								250	8,4-8,6		
								425-465	=2,0		
VH =	max. 46°			4,0	1340-1370			550	max. 1,0		
				1500	0-1,0						

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation: At 1245-1265 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F) rev/min 1	cm³/-1000 strokes 2	Control rod stop ③a rev/min 3	Fuel delivery characteristics ③b rev/min 4	cm³/-1000 strokes 5	Starting fuel delivery Idle speed ⑥ rev/min 6	cm³/1000 strokes / Control rod travel mm 7
LDA 1000	0,7 bar 71,5 - 72,5 (69,5 - 74,5)		LDA 600	0 bar 51,5 - 53,5 (49,0 - 56,0)	100	135,0-145,0 (132,0-148,0) = 19,5-21,0 mm RW
					250	7 mm RW

Checking values in brackets

11.84

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1000 rev/min decreasing / increasing pressure = in bar gauge pressure

DAF 6,2 i

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel mm (1)	diminution / difference
..RS 2547 + RQ..AB 1022 R	0,70		10,8 - 10,9	
		0,20	10,6 - 10,7	
		0,12	9,9 - 10,1	
		0	9,8 - 10,0	

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 OMB 7,4 b 3

1. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2566 RQ 300/1400 AB1061DL

Komb.-Nr. 0 400 846 434

supersedes 5.79
company OM Brescia
engine 8360.04.300

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	10,9-11	7,2 - 7,4	0,3(0,45)			
300	7,9-8,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	9,9	1445-1460	300	6,0	100	min.7,5	1400	10,9-11,0
				4,0	1555-1585			300	5,9-6,1	790	11,2-11,5
								445-485	=2,0	615	12,3-12,5
				1700	0 - 1,0			600	0 - 1	580	12,4-12,5

Torque-control travel on flyweight assembly dimension a = 0,7 mm

Speed regulation At 1445-1460 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
1400	72,5 - 73,5 (70,5 - 75,5)	500	500	60,5 - 63,5 (58,5 - 65,5)	100	115,0-125,0 (112,0-128,0) = 16,3-16,7 mm RW

Checking values in brackets

11.84

E22

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E22

(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 u 6
2. Edition

En

PES 6 A 90 D 410 RS 2569 RQV 300-1400 AB 1111-2L
Komb.-Nr. 0 400 846 492

supersedes 8.82
company Daimler-Benz
engine OM 352
88 kW (120 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35 (2,20-2,40) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	9,8-9,9	5,5 - 5,6	0,3(0,45)			
300	8,2-8,4	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca. 24	100	min. 9,8	250	0,7-0,9
ca.64	8,8	1440-1450					300	8,2-8,4	630	3,7-3,8
	4,0	1530-1560					550-610 = 2,0		1020	5,3-5,4
	1630	0 - 1,0							1400	7,7
						(3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
1400	54,5-55,5 (52,5-57,5)	1440-1450*	500	46,5-49,5 (44,5-51,5)	100	73,0-83,0 (70,0-86,0) = 14,8-15,2 mm RW	1400	9,8+0,1
							500	11,0+0,1
							630	10,8+0,2
							1000	10,2+0,3

Checking values in brackets

* 1 mm less control rod travel than col 2

11.84

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E23

Test Specifications Fuel Injection Pumps and Governors

40

(1A)

WPP 001/4 MB 5,7w2
2. Edition
En

Testoil·ISO 4113

PES 6 A 90 D 410 RS 2569 RSV 350 - 1400 AO B 1136 L
AO C 1136 L
Komb.-Nr. 0 400 876 289

supersede 11.80
company Daimler-Benz
engine OM 352
81 kW (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,20-2,40) 2,25-2,35 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1400	9,6-9,7	4,8 - 4,9	0,2(0,25)			
350	7,9-8,1	0,7 - 1,3	0,2(0,25)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca.18	350	7,5	1400 500	9,6-9,7 10,3-10,4
ca.62 (2a)	1440-1450 = 8,6 1470-1500 = 4,0 1650 = 0,3-1,7						350 590 - 650 = 2,0	7,9-8,1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limiter, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5), Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1400	48,5 - 49,5 (46,5 - 51,5)	1440-1450*	500	39,0 - 42,0 (37,0 - 44,0)	100	80,0-90,0 (77,0-93,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.84

E24

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E24

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 5,7w3

4. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2569 RSV 350 - 1275 A0 B 1138 L
AOC 1138 L
Komb.-Nr. 0 400 876 291

supersedes 0.82
company Daimler-Benz
engine OM 352
62 kW (84 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,20-2,40) 2,25-2,35 mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1250	8,4-8,5	4,0 - 4,1	0,3(0,25)			
350	7,7-7,9	0,8 - 1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800 0,3-1,0 x = 6,0					ca.35	350	7,3	1250	8,4-8,5
							100	min.19,0	500	9,7-9,8
							350	7,7-7,9	785	9,0-9,2
ca. 72 (2a)	1290-1300 = 7,4 1405-1435 = 4,0 1545 = 0,3 - 1,7						670 -	730=2,0		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat: Note changed to rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1250	40,5 - 41,5 (38,5 - 43,5)	1290-1300*	750	39,5 - 41,5 (37,5 - 43,5)	100	80,0-90,0 (77,0-93,0) =15,8- 16,2 mm RW	-	-
			600	37,0 - 39,0 (35,0 - 41,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

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F1

FA

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 5,7w8

3. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2569 RSV 350-1300A0B 1140L
Komb.-Nr. 0 400 876 292 AOC 1140 L

supersedes 8.82
company Daimer B nz
engine OM 352
81 kW (110 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,20-2,40) 2,25-2,35 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
1300	10,1+0,1	5,3 - 5,4	0,3(0,45)			
350	8,6-8,8	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ▭

* Set idle-speed auxiliary spring at 2 mm control-rod travel.

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0	-	-	-	ca.20	350	2,0*	1300	10,1-10,2
ca.61 (2a)	1340-1350=9,1 1435-1465=4,0 1550=0,3-1,7						350 630-690	8,6-8,8 = 2,0	1000 500	10,5-10,8 11,2-11,3

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limiter, Note changed to): rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1300	53,0 - 54,0 (51,0 - 56,0)	1340-1350*	500	45,0 - 47,0 (43,0 - 49,0)	100	78,0-88,0 (75,0-91,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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F2

F2

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 5,7 w 11
1. Edition

En

PES 6 A 90 D 410 RS 2569 RSV 350-1200 A 0 B 1140-1 L
Komb.-Nr. 0 400 876 325

supersedes –
company Daimler-Benz
engine OM 352
70 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testol-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35 (2,20-2,40) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	9,3-9,4	4,3-4,4	0,3 (0,5)			
350	8,4-8,6	1,0-1,6	0,2 (0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	lose	350	8,5	1200	9,3-9,4
	x =	3,75							850	10,6-10,7
							100	min. 19,5	950	10,3-10,5
ca.58	8,3	1230-1240					350	8,4-8,6	1100	9,5-9,7
(2a)	4,0	1330-1360								
	1480	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limiter, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1200	43,0-44,0 (41,0-46,0)	1230-1240*	850	49,0-52,0 (46,5-54,5)	100	78,0-88,0 (75,0-91,0) =16,0-16,4 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.84

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F3

F3

(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 3,8 n 11

1. Edition

En

PES 4 A 90 D 410 RS 2570 RQV 300-1400 AB 1065-7 L
Komb.-Nr. 0 400 844 086

supersedes

company Daimler-Benz
engine OM 314
63 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35 (2,20-2,40) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	11,0+0,1	6,4-6,5	0,3(0,5)			
300	5,9-6,1	1,0-1,4	0,2			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1420	15,2-17,8	-	-	-	ca. 12	100	min.7,5	300	0,8-1,4
ca. 59	10,0	1440-1450					300	5,9-6,1	800	4,3-4,5
	4,0	1540-1570							1445	8,1
	1700	0-1,0				410-480 (3a)				

Torque control travel a = 0,80 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1400	64,0-65,0 (62,0-67,0)	1440-1450*	900	64,0-66,0 (61,5-68,5)	100	78,0-88,0 (75,0-91,0)	1400	11,0+0,
							900	11,8+0,
							1150	11,4+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

F4

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F4

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 LIE 5,6 b

1. Edition

En

PES 4 A 100 D 410 RS 2686 RQV 400-1000 AB 1203 L

Komb.-Nr. 0 400 844 085

supersedes
company: Liebherr
engine: D 904 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,7-2,8 (2,65-2,85) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	11,4+0,1	11,9-12,1	0,35(0,6)			
400	5,3-5,5	1,0-1,6	0,35(0,55			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1070	15,2-17,8	-	-	-	ca. 11	100 400	min.6,9 5,4-5,6	375 600 1000 1150	1,0-1,1 3,7-4,0 7,5-7,6 9,9
ca. 62	10,4 4,0	1040-1050 1105-1135				420-530 (3a)				

Torque control travel a = 1,2 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a) rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 119,0-121,0 (117,0-123,0)	1040-1050*	LDA 700	0,7 bar 128,5-131,5 (126,0-134,0)	100	125,0-135,0 (122,0-138,0) = 14,7-15,3 mm RW	1000 500 900	11,4+0, 12,6+0, 11,8+0,3
LDA 900	0,7 bar 125,5-128,5 (123,0-131,0)		LDA 500	0 bar 87,5-90,5 (85,5-92,5)			850	12,3+0,2

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

F5

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F5

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution / difference mm (1)
PES 4 A .. RS 2686 +RQV .. AB 1203 L	0,70		12,6-12,7
		0	10,2-10,3
		0,40	11,8-11,9
		0,33	10,6-10,8

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 9,6 b

8. Edition

En

PE 6 P 100 A 320 LS 818 RSV 350-1250 P0/810
Komb.-Nr. 0 401 876 183 ..POA810

1- 6- 3 - 5 - 2 - 4
0-75-120-195-240-315° ±0,5° (±0,75°)

supersedes 9.84
company Daimler-Benz
engine OM 401
141 kW (192 PS) (1)
129 kW (175 PS) (2)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test 0 418 3

A. Fuel Injection Pump Settings

Port closing at prestroke 3,4-3,5 (3,35-3,55) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2 •	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
1230	10,3+0,1	10,2-10,4	0,3(0,6)			
350	7,2-7,4	1,4-2,0	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca. 34	350	7,3	-	-
	x =						350	7,2-7,4		
ca. 62 (2a)	9,3	1280-1290					500-560	= 2,0 **		
	4,4	1360-1380								
	1400	0,3-1,7								

The numbers denote the sequence of the tests Set idle-speed auxiliary spring at 2 mm control-rod travel.

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle (5): rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1230 (1)	102,0-104,0 (100,0-106,0)	1280-1290*	-	-	100	140,0-160,0 (136,0-164,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.84

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F7

F7

B. Governor Settings

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.63	1250	14,0	without auxiliary spring			ca. 31	350	5,9	-	-
	1350	8,7					100	19-21		
	1450	2,8					350	5,6-6,2		
ca.60	1250	ca.10,8					450	0,9-3,1		
	1360	ca. 4,4					500	0-1,0		
(5)	1430	0,3-1,0	with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm
rev/min	cm³/1000 strokes		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
1230 (2)	93,0-95,0 (91,0-97,0)	1280-1290*	- (6a)	-	100	110,0-130,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
(5)										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm
rev/min	cm³/1000 strokes		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 10,6a
4. Edition
En

Testoil·ISO 4113

PE 6 P 100 A 320 LS 841 RSV 650-1150 P 1/820 R
Komb.-Nr. 0 401 876 243 P 1A820

6 - 3 - 5 - 2 - 4 - 1
0 -45 -120-165-240-285° ±0,5° (±0,75°)

supersedes 7.83
company Daimler-Benz
engine OM 401
150 kW (204 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,20-3,30 (3,15-3,25) mm (from BDC) Zyl. 6; RW=9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1130	12,7+0,1	11,9 - 12,1	0,3(0,6)			
650	6,1-6,3	0,8 - 1,3	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐

** Set idle-speed auxiliary spring at 2 mm control-rod travel.

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800 0,3-1,0 X = 4,0					ca.32	650	6,2 **	1130	12,7-12,8
							660-715 = 2,0		600	12,7-12,9
ca.58 (2a)	1160-1170 =11,7 1195-1210 = 5,1 1350= 0,3 - 1,4									

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to): rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1130	119,0 - 121,0 (117,0 - 123,0)	1160-1170*	-	-	100	110,0-130,0 (106,0-134,0)	650	6,2

Checking values in brackets

* 1 mm less control rod travel than col 2

11.84

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F9

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 20,9 h 3

1. Edition

En

PL 12 P 120 A 520 LS 843-1 RQ 750 PA 663 L

supersedes – company MAN engine D 2542 MLE 320 kW

Komb.-Nr. 0 401 840 082

1- 5- 9- 8- 3- 4- 11- 10- 2- 6- 7- 12
0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-30 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0 - 3,1 (2,95-3,15) mm (from BDZ) Zyl. 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	10,3+0,1	17,6-18,0	0,5(0,9)			
250	3,9-4,1	1,7-2,3	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	9,3 4,0 900	750-755 776-789 0-1,0	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation: At 750-755 min⁻¹

1 mm less control rod travel

C. Settings for Fuel injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
700	176,0-180,0 (173,0-183,0)	-	-	-	-	-

Checking values in brackets

10.84

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FAO

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 17,4 a 3

2. Edition

En

PE 10 P 110 A 520/5 LS 846 RQV 250-1150 PA 673
Komb.-Nr. 0 401 849 180

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
0-27-72-99-144-171-216-243-288-315° ± 0,50° (± 0,75°)

supersedes 12.83
company MAN
engine D 2540 MT
323 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC) Zyl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,9+0,1	14,0-14,2	0,4(0,8)			
250	7,2-7,4	1,1-1,7	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1170	15,2-17,8	-	-	-	ca.12	100	min.8,8	350	2,0-2,5
ca.65	10,9	1190-1200					250	7,2-7,4	850	6,5-6,7
	4,0	1335-1365					405-465=2,0		1150	8,4
	1450	0-1,0				(3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1150	0,9 bar 140,0-142,0 (137,0-145,0)	1190-1200*	LDA 750	0,9 bar 131,0-135,0 (128,0-138,0)	100	145,0-175,0 (141,0-179,0)	-	-
			LDA 500	0 bar 115,0-118,0 (112,0-121,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

F11

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FAA

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
PE 10 P..LS 846	0,90		11,9 - 12,0
+ RQV..PA 673		0	11,2 - 11,3
		0,38	11,7 - 11,8
		0,33	11,3 - 11,5

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MAN 20,9 q 1

2. Edition

En

PE 12 P 110 A 520/4 LS 848 RQV 250-1200 PA 668-4
Komb.-Nr. 0 401 840 094

1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° ±0,5°(±0,75°)

supersedes 12.83
company: MAN
engine: D 2842 ME
338 kW
Schiff

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,2+0,1	12,4-12,7	0,4(0,75)			
250	6,5-6,7	1,0-1,5	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1330	15,2-17,8	-	-	-	ca.11	100	min.8,1	350	1,9-2,3
							250	6,5-6,7	950	5,6-5,8
ca. 62	10,2	1240-1250							1200	7,4
	4,0	1350-1380								
	1500	0-1,0				425-550 (3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1200	124,0-127,0 (121,5-129,5)	1240-1250*	-	-	100	150,0-170,0 (146,0-174,0)	-	-
					250	10,0-15,0 (7,5-17,5)		

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

F13

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F13

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 17,4 b 5
2. Edition

En

PE 10 P 120 A 520/S LS 850 RQV 250-1150 PA 668-6

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

supersedes 83
comp. MAN
engine 2540 MLE 405 kW
Komb.-Nr. 0401849177

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC) Zyl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,2+0,1	18,6-18,8	0,5 (0,9)			
250	6,2-6,4	1,2-1,8	0,8 (1,2)			

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1230	15,2-17,8	-	-	-	ca. 11	100	min.7,8	350	2,0-2,5
							250	6,2-6,4	750	5,2-5,6
							380-440	= 2,0	1150	7,5-7,9
ca. 59	10,2	1190-1200							1250	8,8
	4,0	1260-1290								
	1400	0 - 1,0				③a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation ②b intermediate speed ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
1150	186,0-188,0 (183,0-191,0)	1190-1200 *	-	-	100	205,0-225,0 (201,0-229,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.84

F14

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FAY

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SAU 12,0 d 1
2. Edition

En

PES 6 P 120 A 420 RS 3049-1 RQ 300/1100 PA 687
1 - 4 - 2 - 6 - 3 - 5 je 60° ± 0,5° (± 0,75°)
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes 3.84
company Saurer
engine D4KTM
235 kW
Komb.-Nr. 0 402 046 744

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,4+0,1	20,5-20,7	0,5(0,9)			
300	5,0-5,2	2,3-2,9	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
750	13,1-13,9	750	13,5	10,3	1145-1160	300	5,1	100	min.6,5	700	12,4-12,5
				4,0	1200-1230			300	5,0-5,2	900	12,1-12,4
				1350	0-1,0			450-480	= 2,0	1000	11,8-12,0
										1100	11,4-11,8

Torque-control travel on flyweight assembly dimension a = 0,45 mm

Speed regulation: At 1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes/ Control rod travel mm 7
LDA 700	0,9 bar 205,0-207,0 (202,0-210,0)	-	LDA 400	0 bar 88,0-92,0 (85,0-95,0)	100	210,0-240,0

Checking values in brackets

11.84

F15

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution / difference mm (1)
PES 6 P..RS 3049-1 + RQ..PA 687	0,90		12,4-12,5
		0	8,6-8,7
		0,60	11,8-11,9
		0,35	9,5-9,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

(2) KPP 001/4 SAU 12,0 d 2
1. Edition
En

PES 6 P 120 A 420 RS 3049-1 X RQ 300/1100 PA 687
1-4-2-6-3-5 je 60° ± 0,5° (± 0,75°)
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes –
company Saurer
engine D 4 KTM 184 kW

Komb.-Nr. 0 402 046 744 X

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8-2,9 (2,75-2,95) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	9,9+0,1	16,0-16,2	0,5(0,9)			
300	5,0-5,2	2,3-2,9	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
750	13,1-13,9	750	13,5	7,6 4,0 1350	1145-1160 1200-1230 0 - 1,0	300	5,1	100 300 450-480	min. 6,5 5,0-5,2 = 2,0	700 930 1030 1100	9,9-10,0 9,6-9,9 9,0-9,2 8,7-8,9

Torque-control travel on flyweight assembly dimension a = 0,45 mm

Speed regulation: At 1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
LDA 700	0,7 bar 160,0-162,0 (157,0-165,0)	-	LDA 400	0 bar 88,0-92,0 (85,0-95,0)	100	210,0-240,0

Checking values in brackets

11.84

F17

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
PES 6 P..RS3049-1X + RQ.. PA 687	0,70		9,9-10,0
		0	8,6-8,7
		0,45	9,5-9,6
		0,37	8,8-9,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 11,0 c 4

1. Edition

En

PE 6 P 110 A 320 LS 3805-10 RQV 300-1150 PA 524-4

Komb.-Nr. 0 401 846 748

supersedes

company Daimler-Benz

engine OM 421
159 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1 (3,95-4,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,7+0,1	13,2-13,4	0,4(0,8)			
300	7,8-8,0	1,2-1,8	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1190	15,2-17,8	-	-	-	ca. 22	100	min.9,5	300	1,6-1,8
							300	7,8-8,0	800	5,8-6,2
ca. 55	10,7	1190-1200					410-470=2,0		1200	8,2-8,4
	4,0	1235-1265							1260	10,0
	1400	0-1,0				(3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a) rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1150	132,0-134,0 (129,5-136,5)	1190-1200*	600	110,0-114,0 (107,0-117,0	100	130,0-150,0 (126,0-154,0	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

F19

10.84

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F49

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 14,6 q 1

1. Edition

En

PE 8 P 120 A 320 LS 3807-10 RQ 300/1150 PA 546-2

supersedes-
company Daimler-Benz
engine OM 422 LA
276 kW
Komb.-Nr. 0 401 848 753

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je 45° ± 0,5° (± 0,75°)
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0 - 4,1 (3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,0+0,1	18,2-18,4	0,5(0,9)			
300	5,4-5,6	1,2-2,0	0,8(1,2)			
750	-	C, Sp. 4 u. 5	0,8(1,2			
500						

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	11,0	1195-1210	300	4,9	100	min.6,5	150	12,0-12,1
VH=max. 46°				4,0	1255-1285			300	5,4-5,6	750	12,4-12,5
				1350	0-1,0			365-415	=2,0	900	12,2-12,4

Torque-control travel on flyweight assembly dimension a = 0,2 mm

Speed regulation: At 1195-1210 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes/ Control rod travel mm 7
LDA 1150	0,7 bar 182,0-184,0 (179,0-187,0)	-	LDA 750	0,7 bar 195,0-198,0 (192,0-201,0)	100	140,0-160,0 (136,0-164,0)
			LDA 500	0 bar 141,0-143,0 (138,0-146,0)		

Checking values in brackets

10.84

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel mm (1)	diminution / difference
PE 8 P .. LS 3807 + RQ..PA 546-1	0		10,5 - 10,7	
		0,40	11,1 - 11,2	
		0,55	12,2 - 12,4	

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

F21

En F2A

(1A)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 OMB 4,4 d 1
4. Edition

En

Testoil-ISO 4113

PES 4 A 90 D 410 RS 2195 Z RSV 325-1050 A 4 B 1079 DL

Komb.-Nr. 0 400 874 213

supersedes 12.80
company OMB
engine CO 3

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,10-2,30) 2,15-2,25 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,3+0,1	7,9 - 8,0	0,3(0,45			
325	6,4-6,6	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0				ca.26	325	6,0	1050	11,3-11,4
	X	= 4,5					100	min.19,0	500	11,3-11,5
(5) ca.63	1090-1135-1300	100 = 10,3 165 = 4,0 = 0,3-1,7					325 455-515 575	6,4-6,6 =2,0 max.1,0	375	11,5-12,1

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1050	79,5 - 80,5 (77,5 - 82,5)	-	600	69,5 - 72,5 (67,5 - 74,5)	100	19,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

F22

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F22

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 u 2

5. Edition

En

Testoil-ISO 4113

PES 6 A 90 D 410 RS 2568 ROV 300-1400 AB 1066-1 DL (1)
RSV 350-1400 AO B2075 L (2)
AOC 2075 L

supersedes 5.81
company Daimler-Benz
engine OM 352A
(1) 127 kW (173 PS)
(2) 123 kW (167 PS)

Set idle-speed auxiliary spring at 2 mm control-rod travel

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,05-2,15 (2,00-2,20) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery 1 cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery 2 cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	12,9-13,0	7,7 - 7,8	0,3(0,45)	13,0-13,1	7,5 - 7,7	n = 1380
300	8,9- 9,1	1,1 - 1,7	0,2(0,4)	8,9- 9,1	0,7 - 1,3	n = 350
800/500	---	C, 4-5	0,4(0,55)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

1066-1 DL

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1400	15,2-17,8	-	-	-	ca.16	100 300 740-800	min.10,5 8,9-9,1 =2,0	300 490 1450	1,3 2,5-2,7 8,6
ca.62	12,0 4,0 1800	1440-1450 1590-1620 0 - 1,0				(3a) 400-470				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed (2b) limitation ~~intermediate speed~~ (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
LDA 1400	0,7 bar 77,0 - 78,0 (75,0 - 80,0)	1440-1450*	LDA 800 LDA 500	0,7 bar 81,5 - 83,5 (79,5 - 85,5) 0 bar 49,5 - 51,5 (47,5 - 53,5)	100 100	72,25-82,25 220 (80-240)	1400 1450 1075 500	12,9-13,0 13,1-13,4 13,7-13,9 14,0-14,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

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The numbers denote the sequence of the tests

B. Governor Settings

(1) Upper rated speed rev/min			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0				ca. 19	350	8,5	1380	13,0-13,1
	x	= 2,75					350	8,9-9,1	1050	13,4-13,6
ca.52 (2a)	12,0 4,0 1640	1420-1430 1480-1500 0,4 - 1,7					430-490	=2,0	500	13,6-13,7

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop Test oil temp 40°C (104°F)		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery (5) Idle		(4a) Idle stop	
rev/min 1	cm³/1000 strokes 2	Note. changed to .) rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1380	75,5 - 76,5 (73,5 - 78,5)	1420-1430*	900	77,5 - 80,0 (75,5 - 82,0)	100	90,0-100,0 (87,0-103,0) =17,0-17,4 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel mm (1)
2568 with1066-1D	0,7		14,0 - 14,1
		0,45	13,4 - 13,5
		0,15	12,1 - 12,3
		0	11,6 - 11,7

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

En

F24

F24

(1A)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 MB 5,7 o 1
5. Edition

En

PES6A90D410RS2293 RSV575-1250A1B618L
Komb.-Nr. 0 400 876 192

supersedes 5.84
company Daimler-Benz
engine OM 352
88 kW (120 PS)

Testoil ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1230	10,5+0,	6,1-6,2	0,3(0,45)			
575	6,4-6,6	1,1-1,7	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0	-	-	-	ca. 31	575	6,5	-	-
	X=5,0						100	min.19,0		
							575	6,4-6,6		
Ca.62							600-630=2,0			
(5)	9,5	1250-1260					**			
	4,0	1275-1295								
	1350	0,3-1,7								

** Set idle-speed auxiliary spring at 2.0 mm control-rod travel, then 1/2 turn back.

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat.	(3a) Fuel delivery characteristics		Starting fuel delivery Idle		(5a) Idle stop	
Test oil temp 40°C (104°F) rev/min 1	cm³/1000 strokes 2	Note: changed to ... rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
1230	61,0-62,0 (59,0-64,0)	1250-1260*	-	-	100	78,0-88,0 (75,0-91,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.84

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G1

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 u 5
2. Edition

En

PES 6 A 90 D 410 RS 2569 RQV 300-1400 AB 1065-2 DL
Komb.-Nr. 0 400 846 480

superseded 4.81
company Daimler-Benz
engine OM 352
88,3 kW (120 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35 (2,20-2,40) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	9,8-9,9	5,5 - 5,6	0,3(0,45)			
300	8,2-8,4	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1400	15,2-17,8				ca. 24	300	8,3	300	1,2+0,1
							100	min.9,8	675	3,9+0,2
ca. 64	8,8 4,0 1630	1440-1450 1530-1560 0 - 1,0				③a	300 550-610=2,0mm	8,2-8,4	450	8,0-8,1

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed ②b ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ Idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
1400	54,5 - 55,5 (52,5 - 57,5)	1440-1450*	500	46,5 - 49,5 (44,5 - 51,5)	100	73,0-83,0 (70,0-86,0) = 14,8-15,2 mm RW	1400 1000 630 500	9,8-9,9 10,1-10,4 10,8-11,0 11,0-11,1
			Set stop at 3 - 3,5 mm control rod travel					

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

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①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 u
5. Edition
En

PE 6 P 120 A 720 RS 7001 RQV 200-1000 PA 539

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes 5.83
company Scania
engine DS 11 15
Komb.-Nr. 0 402 646 801

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers.

A. Fuel Injection Pump Settings

Port closing at prestroke ab FD 141: 5,0-5,1 (4,95-5,15) bis FD 052: 4,40-4,50 (4,35-4,55) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	19,9-20,1	0,6 (0,9)			3,3 ± 0,1 **
225	4,4-4,6	1,3-1,7	0,3(0,6)			(3,0 - 3,5)

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	150	0,5-0,8
ca. 60	12,2	1040-1050					225	4,4-4,6	430	3,0-3,5
	4,0	1150-1180					310-370=2,0		720	5,0-5,2
	1300	0 - 1,0				③a			1000	7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed ②b ④a rev/min 3	Fuel delivery characteristics high idle speed ⑤a ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point ⑥ rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
LDA	0,9 bar	1040-1050*	LDA	0,9 bar	100	240,0-290,0	-	-
700	199,0-201,0 (196,0-204,0)		1000	193,0-201,0 (191,0-203,0)		bei 20,0 - 21,0 mm RW		
			LDA 500	0 bar 160,0-164,0 (158,0-166,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing/increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PE 6 P..RS 7001	0,42		12,8 - 12,9
+ ..PA 539		0,90	13,2 - 13,3
		0	11,6 - 11,7
		0,29	11,9 - 12,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

SCA 11,0 y 1

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 18.8.1983
- Start of fuel delivery-engine: 17° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted TO 2,9 - 3,1 mm.

(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 SCA 11,0 u8
3. Edition

En

PE 6 P 120 A 720 RS 7001 RQV200-1000 PA 612
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersede 5.83
company Scania
engine DN 11 06, 07 BUS-Motor
Komb.-Nr. 0 402 646 807

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ab FD 141: 5,0-5,1 (4,95-5,15) mm (from BDC) bis FD 052: 4,4-4,5 mm (4,35-4,55)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,3+0,	15,7-15,9	0,6(0,9)			3,3±0,1 (3,0-3,5) **
225	4,4-4,6	1,1-1,5	0,3(0,6)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1000	15,2-17,8	-	-	-	ca.10	100	min.5,9	150	0,5-0,8
ca. 59	10,3 4,0 1250	1040-1050 1115-1145 0-1,0				(3a)	225 310-370	4,4-4,6 =2,0	430 720 1000	3,0-3,5 5,0-5,2 7,7

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) Intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
600	157,0-159,0 (154,0-162,0)	1040-1050*	1000	154,0-162,0 (152,0-164,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

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G5

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 18.8.1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

Test Specifications Fuel Injection Pumps ② and Governors

supersedes 9.83
company: Daimler-Benz
engine: OM 422
206 kW (280 PS)

PE8P110A320 LS 3802 RQ 300/1150 PA 187-3
RQ 300/1150 PA 187-5

Komb.-Nr. 0 401 848 708
1-8-7-2-6-3-5-4 je 45° ±0,5° (±0,75°)
Note VDT-I-420/114

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1 (3,95-4,15) mm (from BDOW) = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery mit RSD (1) cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery ohne RSD (2) cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	12,3+0,1	12,7-12,9	0,4(0,8)	11,7+0,1	13,3-13,5	
300	8,0-8,1	1,5-2,1	0,4(0,7)	7,9-8,1	1,5-2,1	
600	12,3+0,1	C, Sp. 4 u. 5	0,8(1,1)	11,7+0,1	C, Sp. 4 u.5	

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ① rev/min 1	Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3	Control rod travel mm 4	Test specifications ④ Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7	Control rod travel mm 8	Test specifications ⑤ rev/min 9	Control rod travel mm 10	Torque control ③ rev/min 11	Control rod travel mm 12
650	13,0-14,0	650	13,5	11,3	1195-1210	300	8,1	100	min. 10,2	-	-
				4,0	1235-1265			300	8,0-8,2		
				1350	0 - 1,0			420-460	= 2,0		
								550	max. 1,8		

Torque-control travel on flyweight assembly dimension a = - mm Speed regulation: At 1195-1210 min. -1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F) rev/min 1	cm³/-1000 strokes 2	Control rod stop ③a rev/min 3	Fuel delivery characteristics ③b rev/min 4	cm³/-1000 strokes 5	Starting fuel delivery Idle speed ⑥ rev/min 6	Control rod travel mm / cm³/1000 strokes 7
1150 (1)	127,0-129,0 (124,0-132,0)	600	600	118,0-122,0 (115,0-125,0)	100	130,0-150,0

Checking values in brackets

11.84

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B. Governor Settings

Checking of slider PRG check (1)		Full load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
650	13,0-14,0	650	13,5	10,7 4,0 1350	1195-1210 1230-1260 0-1,5	300	8,1	100 300 420-460 550	min. 10,2 8,0-8,2 =2,0 max. 1,8	-	-

Torque control travel on flyweight assembly dimension a - mm

Speed regulation At 1195-1210 min^{-1}

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm^3/-1000 strokes 2	rev/min 3	rev/min 4	cm^3/-1000 strokes 5	rev/min 6	cm^3/1000 strokes / Control rod travel mm 7
1150 (2)	132,5-134,5 (130,0-137,0)	600	600	109,5-115,5 (106,5-118,5)	100	130,0-150,0 (126,0-154,0)

Checking values in brackets

Testoil-ISO 4113

B. Governor Settings

Checking of slider PRG check (1)		Full load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12

Torque control travel on flyweight assembly dimension a = mm

Speed regulation At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm^3/-1000 strokes 2	rev/min 3	rev/min 4	cm^3/-1000 strokes 5	rev/min 6	cm^3/1000 strokes / Control rod travel mm 7

Checking values in brackets

Test Specifications Fuel Injection Pumps ① and Governors

VDT-WPP 001/4 MAC 11,0 x 3
En 2. Edition

US-PES6P110A720RS6006 US-RQV300/600-1050PA621-2K

supersedes 5.83
company: Mack
engine: EME 6 - 250
250 PS

Komb. - Nr. 9 400 231 155

PLE-Maß = 0,740" - 0,820"

Note VDT-I-MAC 002 !

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 3,2 -3,3 (3,15-3,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	11,9+0,1	18,9 - 19,1	0,4			
300	5,3-5,5	1,4 - 2,4	0,4			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1120	15,2-17,8	-	-	-	ca.20	250	9,8-11,3	-	-
ca. 62	10,9 4,0 1240	1090-1100 1165-1195 0 - 1,0				③a	300 400 690-750	7,9-8,1 3,8-5,2 = 2,0		

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation ②b intermediate speed ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
1050	188,5-190,5	1090-1100 *	850	197,5-200,5	100	110,0-170,0	1050	11,9
							950	11,9+0,1
			630	210,5-213,5			850	12,0+0,1
				PLE			750	12,2+0,1
			800	134,0-142,0			630	12,6+0,1
							500	12,2+0,1

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

G9

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Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8g 1
4. Edition
En

Testcol-ISO 4113

VA 6/110 H 1100 CR 180-1
CR 180-1 P

0 460 316 018

supersedes 6.83
company IHC
engine DT 358 "1246"

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers
Test Intructions and Test Equipment VDT WPP 161/4 B
Pre setting see reverse side

Pre stroke setting 0,5 mm ± 0,02 (± 0,04)
Setting of the pointer at a stroke af 1,0 mm in relation to outlet "A".

1. Settings

	rev/min	Settings		Charge air press kp/cm²	Difference in delivery cm³
1 1 Timing device travel	800	5,7-6,7	mm	0	
1 2 Supply pump pressure	800	4,8-5,3	kp/cm²	0	
1 3 Full load delivery without charge air pressure	800	77,0-79,0	cm³/1000 strokes	0	
Full load delivery with charge air pressure	800	85,5-86,5	cm³/1000 strokes	0,4	2,5
1 4 Idle speed regulation	450	14,5-20,5	cm³/1000 strokes	0	3,0
1 5 Start	100	mind. 95,0	cm³/1000 strokes	0	
1 6 Full load speed regulation	1180	41,0-49,0	cm³/1000 strokes	0,4	

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	200-350(170-380)	400	800	900-1050
	mm	Beginn	1,0-2,0(0,7-2,3)	(5,4-7,0)	6,9-7,6(6,6-7,9)
2 2 Supply pump	rev/min	200		800	1100
	kp/cm²	1,3-1,8(1,1-2,0)		(4,6-5,5)	6,0-6,4(5,8-6,6)
Overflow delivery	rev/min	500			1100
	cm³/10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm³/1000 strokes		Charge air pressure kp/cm²
End stop	Full	1210-1280	0		0,4
		(1190-1300)			
		1180		(40,0-50,0)	0,4
		1100-1130	Beginn		
		1050	86,5-89,5	(85,5-90,5)	0,4
		800		(85,0-87,0)	0,4
		800		(76,0-80,0)	0
		500	78,5-81,5	(77,5-82,5)	0,2
	Stop	1100	0		
Idle stop	Full	530-580	0		
		(510 600)			
		450		(13,5-21,5)	
End stop	Start	100	mind. 95,0		
		220-320			

01.85

G10

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Angle to the stop plate	Pre-setting dimensions
Pump " = 25 ± 4° " = 40 ± 8° " "	Pump Dimension TV 0,6 mm Dimension V 24,6 mm

Stop check at n = 70 min/1

LDA start: 0.04 - 0.07

End : 0.21 - 0.25

G11

G11

Test Specifications Distributor-Type Fuel Injection Pump

46

WPP 001/4 IHC 5,8g 2

3. Editi

En

VA 6/110 H 1100 CR 180-2
0 460 316 022
DHK: 1 688 901 020/172+3 bar

supersedes 6.83
company IHC
engine DT 358

Nozzle-and-holder assembly
1 688 901 020 (172 + 3 bar)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers
Test Intructions and Test Equipment VDT WPP 161/4 B
Pre-setting see reverse side

Pre stroke setting 0,5 mm ± 0,02 (± 0,04)
Setting of the pointer at a stroke af 1,0 mm in relation to outlet "A".

1. Settings

	rev/min	Settings		Charge air press kp/cm²	Difference in delivery cm³
1 1 Timing device travel	800	5,7-6,7	mm	0	
1 2 Supply pump pressure	800	4,8-5,3	kp/cm²	0	
1 3 Full-load delivery without charge-air pressure	800	77,0-79,0	cm³/1000 strokes	0	
Full-load delivery with charge air pressure	800	85,5-86,5	cm³/1000 strokes	0,4	2,5
1 4 Idle speed regulation	450	14,5-20,5	cm³/1000 strokes	0	3,0
1 5 Start	100	mind. 95,0	cm³/1000 strokes	0	
1 6 Full-load speed regulation	1180	41,0-49,0	cm³/1000 strokes	0,4	

2. Test Specifications

Checking values in brackets

2 1 Timing device	rev/min	200-350(170-380)	400	800	900-1050
	mm	Beginn	1,0-2,0(0,7-2,3)	(5,4-7,0)	6,9-7,6(6,6-7,9)
2 2 Supply pump	rev/min	200		800	1100
	kp/cm²	1,3-1,8(1,1-2,0)		(4,6-5,5)	6,0-6,4(5,8-6,6)
Overflow delivery	rev/min	500			1100
	cm³/10 s	55-100(40-110)			55-100(40-110)

2 3 Fuel deliveries

Speed control lever	Delivery lever	rev/min	cm³/1000 strokes		Charge air pressure kp/cm²
End stop	Full	1210-1280 (1190-1300)	0		0,4
		1180		(40,0-50,0)	0,4
		1100-1130	Beginn		
		1050	86,5-89,5	(85,5-90,5)	0,4
		800		(85,0-87,0)	0,4
		800		(76,0-80,0)	0
		500	78,5-81,5	(77,5-82,5)	0,2
	Stop	1100	0		
Idle stop	Full	530-580 (510-600)	0		
		450		(13,5-21,5)	
End stop	Start	100	mind. 95,0		
		220-320			

01.85

G12

G 12

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Angle to the stop-plate	Pre-setting dimensions
Pump α = 25 ± 4° β = 40 ± 8° γ δ	Pump Dimension IV 0,60 mm Dimension V 24,60 mm

Stop check at n = 70 min/1

LDA start: 0.04 - 0.07

End : 0.21 - 0.25

G13

G13

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 Volvo 3,6 n
3. Edition

En

7.84

Testoil-ISO 4113

VE 6/11 F 1800 L 18-3 Overflow temperature 45° C

0 460 416 027

supersedes Volvo
company: TD 40 A (93 kW)
engine

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ±0,02 (0,04)

1. Settings

	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	3,6-4,0	mm	0,75	
1.2 Supply pump pressure	1500	6,6-7,2	bar (kgf/cm²)	0,75	
1.3 Full-load delivery with charge-air pressure	1500	57,0-58,0	cm³/1000 strokes	0,75	3,0(4,0)
Full-load delivery without charge-air pressure	500	40,0-42,0	cm³/1000 strokes	0	
1.4 Idle regulation	325	8,0-12,0	cm³/1000 strokes	0	3,0(4,0)
1.5 Full-speed regulation	2000	19,0-25,0	cm³/1000 strokes	0,75	
1.6 Start	100	min. 60,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-				

2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA=0,75 bar	n = rev/min	1100	1500	1800
	mm	1,6-2,4(1,3-2,7)	(3,1-4,5)	4,5-5,3 (4,2-5,6)
2.2 Supply pump LDA=0,75 bar	n = rev/min	400		1800
	bar (kgf/cm²)	2,5-3,1		7,7-8,3
Overflow delivery	n = rev/min	500		1800
	cm³/10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)
End stop	2100	max. 2,0	0,75
	2000	(17,5-26,5)	0,75
	1900	38,0-48,0 (38,0-48,0)	0,75
	1800	52,5-55,5 (51,3-56,6)	0,75
	1500	(54,8-60,1)	0,75
	*500	46,0-48,0 (43,6-50,4)	0,28
	500	(37,6-44,4)	0
switch-off			
Idle stop	400	max. 3,0	
	325	5,5-14,5	
End stop	110	min. 60	
	220	max. 40	

2.4 Solenoid

max. cut-in voltage xxx min. 10. V
test voltage ~~xxxx~~ rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,9-6,2
MS	1,2-1,4
SVS	max. 4,7
A XK	20,2-22,2
B XL	10,4-16,4

Observations

*Manifold-pressure compensator stroke = 4,0 mm
Correction at the adjusting nut. (46)

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10.84

Test Specifications Distributor-type Fuel-injection Pumps

WPP 001/4 MAN 5,6 b

2. Edition

En

VE 6/11 F 1500 R 49
0 460 416 008

Overflow temperature 45° C

supersedes MAN
company
engine D 0226 M

Setting of the pointer at a stroke af 1,0 mm in relation to outlet "A".

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting 0,6 mm ± 0,02(0,04) mm

1. Settings

	Rot speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1000	6,0-6,4	mm		
1.2 Supply-pump pressure	1000	5,7-6,3	bar (kgf/cm²)		
1.3 Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
Full-load delivery without charge-air pressure	1000	63,5-64,5	cm³/1000 strokes		2,5 (4,0)
1.4 Idle regulation	300	8,0-12,0	cm³/1000 strokes		2,5 (4,0)
1.5 Full-speed regulation	1550	52,0-58,0	cm³/1000 strokes		
1.6 Start	100	min. 60,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	-	.			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	600	1000	1400
	mm	3,8-4,6(3,5-4,9)	(5,5-6,9)	8,7-9,5 (8,4-9,8)
2.2 Supply pump	n = rev/min	400		1500
	bar (kgf/cm²)	3,2-3,8		7,3-7,9
Overflow delivery	n = rev/min	500		1500
	cm³/10 s	55-110 (40-125)		55-110 (40-125)

2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)
End stop	1680	max. 4,0	
	1630	12,0-21,0	
	1550	(50,5-59,5)	
	1500	69,5-71,5 (67,9-73,2)	
	1000	(61,3-66,7)	
	600	46,0-49,0 (44,1-50,9)	
switch-off	1500	0	
Idle stop	400-470	0	
	300	(5,5-14,5)	
End stop	370		
	470		

2.4 Solenoid

max. cut-in voltage xxx min. 20,0 V
test voltage ~~xxxxxxx~~ xx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,7-5,9
MS	1,4-1,6
SVS	max. 4,6
A XK	18,6-20,6
B XL	9,0-12,8

Observations

Pulling electro-magnet

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G15

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 IBE 4,0a

3. Edition

En

VE 4/12 F 1300 R 103

Overflow temperature 45° C

supersedes 1.84
company: Iberica
engine: T 4.236

0 460 424 004

DHK: 1 688 901 020

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/..

Pre-stroke setting 0,3 mm

Test Oil-ISO 4113

1. Settings

	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1000	4,0-4,4	mm	0,8	
1.2 Supply-pump pressure	1000	5,5-6,1	bar (kgf/cm²)	0,8	
1.3 Full-load delivery with charge-air pressure	500	66,0-67,0	cm³/1000 strokes	0	
Full-load delivery without charge-air pressure	800	94,0-95,0	cm³/1000 strokes	0,8	4,0 (4,5)
1.4 Idle regulation	300	6,0-12,0	cm³/1000 strokes	0	3,5 (4,5)
1.5 Full-speed regulation	1400	64,0-72,0	cm³/1000 strokes	0,8	
1.6 Start	100	min. 70,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA=0,8 bar	n = rev/min	500	1000	1300
	mm	0,4-1,2(0,1-1,5)	(3,5-4,9)	5,6-6,4 (5,3-6,7)
2.2 Supply pump LDA=0,8 bar	n = rev/min	500		1300
	bar (kgf/cm²)	3,3-3,9		6,7-7,3
Overflow delivery	n = rev/min	500		1300
	cm³/10 s	55-110(40-125)		55-110(40-125)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)
End stop	1640	max. 1,0	0,8
	1580	max. 5,0	0,8
	1400	(63,0-73,0)	0,8
	1300	84,5-87,5(83,0-89,0)	0,8
	800	(91,5-97,5)	0,8
	*800	91,0-92,0(87,7-95,3)	0,42
	500	(62,7-70,3)	0
switch-off			
Idle stop	430	max. 1,0	
	370	max. 3,0	
	300	(4,0-14,0)	
End stop	110	min. 70,0	
	210	max. 70,0	

2.4 Solenoid

max. cut-in voltage xxxx min. 10,0 V

test voltage xxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	--
KF	5,1-5,4
MS	1,1-1,35
SVS	5,0
AXK	20,2-22,2
BXL	8,6-11,9

Observations

* Manifold-pressure compensator stroke = 4,2 mm
Correction at the adjusting nut. (46)

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12 .84

G16

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 BMW 2,4 d

1. Edition

En

Testing 0 415

VE6/10F2400 R 117
0 460 406 023
DHK: 1688 901 022/130 bar
Test pressure line
6x2x450/1 680 750 073

Overflow temperature 45° C

supersedes
company BMW-USA
engine M21D24

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting mm

1. Settings

	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	4,5-4,9	mm	1,050	
1.2 Supply-pump pressure	1500	6,1-6,5	bar (kgf/cm²)	1,050	
1.3 Full-load delivery with charge-air pressure	1500	39,5-40,5	cm³/1000 strokes	1,050	max. 3,0
Full-load delivery without charge-air pressure	500	21,5-22,5	cm³/1000 strokes	0	max. 3,0
1.4 Idle regulation	400	6,0-10,0	cm³/1000 strokes	0	max. 3,0
1.5 Full-speed regulation	2600	17,0-23,0	cm³/1000 strokes	1,050	
1.6 Start	250	35,0-37,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-				

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min mm	Please note instructions on sheet 2	
2.2 Supply pump LDA=1,050 bar	n = rev/min bar (kgf/cm²)	500 3,2-3,6	2300 8,1-8,5
Overflow delivery	n = rev/min cm³/10 s	500 55-138(40-153)	2400 55-138(40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)
End stop	2700	7,0-13,0 (6,0-14,0)	1,050
	2600	(16,0-24,0)	1,050
	2400	39,5-41,5(37,9-43,1)	1,050
	1500	(37,4-42,6)	1,050
	*750	31,5-32,5(29,4-34,6)	0,5
	500	(19,0-25,0)	0
switch-off			
Idle stop	450	max. 3,0	
	400	(4,0-12,0)	
	**850	16,0-18,0	
Please note instructions on sheet 2.	100	27,0-37,0	
	400	28,0-38,0	
	480	~~19,2-23,3~~	

2.4 Solenoid — max. cut-in voltage xxx min. 10 V
test voltage xxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,3
KF	6,4-6,6
MS	1,4-1,6
SVS	3,4
AXK	20,2-22,2
BXL	9,5-12,8

Observations

* Manifold-pressure compensator stroke = 7,5 mm
**Adjust EGR with gauge

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8.84

Z17

2.1 Timing device

n = min/1	LDA	Solenoid valve	mm
*** 500	1,050 bar	12 V	1,9-2,9 (1,7-3,1)
750	1,050 bar	0 V	1,6-2,4 (1,6-2,7)
***1000	1,050 bar	12 V	3,7-4,7 (3,5-4,9)
1500	1,050 bar	0 V	(4,0-5,4)
2300	1,050 bar	0 V	7,3-8,1 (7,0-8,4)

*** Testing the hydr. cold-start accelerator

Exhaust gas reciculation driver	850
Start-Inspection point	100
Limit stop	400
	480

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 3,9 a 4

1. Edition

En

VE 4/12 F 1050 R 123-4

0 460 424 010

DHK: 1 688 901 016 / 207 + 3 bar

Overflow temperature 45° C

supersedes -
company Cummins
engine 4 BT-390

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

1. Settings

	Rot speed rev/min	Settings		Charge air press bar (kgf/cm²)	Difference in delivery cm³
1 1 Timing device travel	900	2,3-2,7	mm		
1 2 Supply-pump pressure	900	4,5-5,1	bar (kgf/cm²)		
1 3 Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
Full-load delivery without charge-air pressure	900	85,0-86,0	cm³/1000 strokes		4,0 (4,5)
1 4 Idle regulation	375	18,5-24,5	cm³/1000 strokes		3,5 (4,5)
1 5 Full-speed regulation	1120	46,0-54,0	cm³/1000 strokes		
1 6 Start	100	min. 97,0	cm³/1000 strokes		
1 7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min	750	900	1050
	mm	1,2-2,0(0,9-2,3)	(1,8-3,2)	3,0-3,8(2,7-4,1)
2 2 Supply pump	n = rev/min	400	750	1050
	bar (kgf/cm²)	2,3-2,9	3,9-4,5	5,2-5,8
Overflow delivery	n = rev/min	400		1050
	cm³/10 s	55-138(40-153)		55-138(40-153)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	1185	max. 1,5		
	1120		(45,0-55,0)	
	1050	79,5-82,5	(78,0-84,0)	
	900		(82,5-88,5)	
	750	84,5-88,5	(82,7-90,2)	
	400	84,5-88,5	(82,7-90,2)	
switch-off				
Idle stop	450	max. 1,5		
	375		(16,5-26,5)	
	300	44,0-50,0	(42,0-52,0)	
End stop	130	min. 97,0		
	200	max. 85,0		

2 4 Solenoid

max cut-in voltage xx min. 10 V

test voltage xxxxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	4,0
A	
B	

Observations

Stop check electric shutoff device at 375 min/1

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G19

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 3,9 a 6
1. Edition

En

VE 4/12 F 1050 R 123-6
0 460 424 012

Overflow temperature 45° C

supersedes
company Cummins
engine 4 BT - 390 Ind.

DHK: 1688 901 016/207 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

1. Settings	Rot speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1 1 Timing device travel	900	2,3-2,7	mm		
1 2 Supply-pump pressure	900	4,5-5,1	bar (kgf/cm²)		
1 3 Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
Full-load delivery without charge-air pressure	900	64,5-65,5	cm³/1000 strokes		4,0 (4,5)
1 4 Idle regulation	375	18,5-24,5	cm³/1000 strokes		3,5 (4,5)
1 5 Full-speed regulation	1100	31,0-39,0	cm³/1000 strokes		
1 6 Start	100	min. 97,0	cm³/1000 strokes		
1 7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min	750	900	1050
	mm	1,1-1,9 (0,8-2,2)	(1,8-3,2)	3,2-4,0 (2,9-4,3)
2 2 Supply pump	n = rev/min	500	750	1050
	bar (kgf/cm²)	2,8-3,4	3,8-4,4	4,9-5,5
Overflow delivery	n = rev/min	500		1050
	cm³/10 s	55-138 (40-153)		55-138 (40-153)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)
End stop	1150	max. 1,5	
	1100	(30,0-40,0)	
	1050	59,5-62,5 (58,0-64,0)	
	900	(62,0-68,0)	
	750	64,0-68,0 (62,2-69,7)	
	500	60,0-64,0 (58,2-65,7)	
switch-off			
Idle stop	450	max. 1,5	
	375	(16,5-26,5)	
	300	40,3-46,3 (38,3-48,3	
End stop	130	min. 97,0	
	200	max. 85,0	

2 4 Solenoid — max. cut-in voltage xxx min. 10 V
test voltage rated voltage 12V.
XXXXXXXXXX

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	4,2
A	
B	

Observations

Stop check electric shutoff device at 375 min/1

G20

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⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 3,9 a 9
1. Edition

En

VE 4/12 F 1050 R 123-9
0 460 424 018

Overflow temperature 45° C

supersedes -
company Cummins
engine 4 BT-390 Ind.

DHK: 1 688 901 016/207 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

1. Settings

	Rot speed rev/min	Settings		Charge air press bar (kgf/cm²)	Difference in delivery cm³
1 1 Timing device travel	900	2,3-2,7	mm		
1 2 Supply-pump pressure	900	4,5-5,1	bar (kgf/cm²)		
1 3 Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
Full-load delivery without charge-air pressure	900	64,5-65,5	cm³/1000 strokes		4,0 (4,5)
1 4 Idle regulation	375	18,5-24,5	cm³/1000 strokes		3,5 (4,5)
1 5 Full-speed regulation	1100	31,0-39,0	cm³/1000 strokes		
1 6 Start	100	min. 97,0	cm³/1000 strokes		
1 7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min	750	900	1050
	mm	1,1-1,9 (0,8-2,2)	(1,8-3,2)	3,2-4,0 (2,9-4,3)
2 2 Supply pump	n = rev/min	500	750	1050
	bar (kgf/cm²)	2,8-3,4	3,8-4,4	4,9-5,5
Overflow delivery	n = rev/min	500	1050	
	cm³/10 s	55-138 (40-153)	55-138 (40-153)	

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	1150	max. 1,5		
	1100		(30,0-40,0)	
	1050	59,5-62,5	(58,0-64,0)	
	900		(62,0-68,0)	
	750	64,0-68,0	(62,2-69,7)	
	500	60,0-64,0	(58,2-65,7)	
switch-off				
Idle stop	450	max. 1,5		
	375		(16,5-26,5)	
	300	40,3-46,3	(38,8-48,3)	
End stop	130	min. 97,0		
	200	max. 85,0		

2.4 Solenoid — max cut-in voltage xxx min 10 V
test voltage ~~xxxxxxxxxx~~ rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	4,2
A	
B	

Observations

Stop check electric shutoff device at 375 min/1

G21

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Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 3,9 a 10
1. Edition

En

VE 4/12 F 1250 R 123-10 Overflow temperature 45° C
0 460 424 019

DHK: 16 88 901 016/207+3 bar

supersedes -
company Cummins
engine 4 BTA-390

All test specifications are valid only for Bosch Fuel-Injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

1. Settings	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	850	3,7-4,1	mm		
1.2 Supply-pump pressure	850	5,9-6,5	bar (kgf/cm²)		
1.3 Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
Full-load delivery without charge-air pressure	1100	97,5-98,5	cm³/1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	22,0-28,0	cm³/1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1340	28,0-34,0	cm³/1000 strokes		
1.6 Start	100	min. 105,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	500	850	1100
	mm	1,8-2,6 (1,5-2,9)	(3,2-4,6)	4,6-5,4 (4,3-5,7)
2.2 Supply pump	n = rev/min	500	1100	
	bar (kgf/cm²)	4,3-4,9	6,7-7,3	
Overflow delivery	n = rev/min	500	1250	
	cm³/10 s	55-138 (40-153)	55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	1400	max. 2,0	
	1340	(26,0-36,0)	
	1290	68,0-76,0 (67,0-77,0)	
	1250	91,5-94,5 (90,0-96,0)	
	1100	(95,0-101,0)	
	850	102,0-106,0 (100,2-107,7)	
	500	90,5-94,5 (88,7-96,2)	
switch-off			
Idle stop	450	max. 2,0	
	375	(20,0-30,0)	
	300	45,0-53,0 (44,0-54,0)	
End stop	130	min. 105,0	
	250	max. 105,0	

2.4 Solenoid	max. cut-in voltage	xxxx min. 10 V
	test voltage	xxxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	0,7-0,95
SVS	3,0
A	
B	

Observations

Stop check electric shutoff device at 375 min/1

G22

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⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 OPE 2,3 g

1. Edition

En

Testoil-ISO 4113

VE 4/10 F 2100 L 155

0 460 404 036

Overflow temperature 45° C

supersedes
company Opel
engine: 2,3 TD

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting - mm

1. Settings

	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	5,1-5,5	mm	0,8	
1.2 Supply-pump pressure	1500	5,5-6,1	bar (kgf/cm²)	0,8	
1.3 Full-load delivery with charge-air pressure	1200	58,5-59,5	cm³/1000 strokes	0,8	3,0
Full-load delivery without charge-air pressure	500	36,0-37,0	cm³/1000 strokes	0	
1.4 Idle regulation	290	13,5-17,5	cm³/1000 strokes	0	3,0
1.5 Full-speed regulation	2425	15,0-21,0	cm³/1000 strokes	0,8	
1.6 Start	100	min. 48,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	1500			0	

2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA=0,8 bar	n = rev/min	800	1200	1500	2100
	mm	1,5-2,3(1,2-2,6)	3,4-4,0(3,0-4,4)	(4,6-6,0)	7,9-8,7(7,6-9,0)
2.2 Supply pump	n = rev/min	500	1200	2100	
	bar (kgf/cm²)	3,2-3,8	4,9-5,5(0,8 bar)	6,9-7,5(0,8 bar)	
Overflow delivery	n = rev/min	500		2100 (0,8 bar)	
	cm³/10 s	55-138(40-153)		55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	2550	max. 6,0		0,8
	2425		(13,5-22,5)	0,8
	2300	28,5-35,5	(27,5-36,5)	0,8
	2100	46,3-48,7	(44,8-50,1)	0,8
	1200		(56,3-61,6)	0,8
	800 *	43,5-44,5	(41,3-46,6)	0,3
	500		(33,1-39,9)	0
switch-off	2100			
Idle stop	380	max. 2,5		
	320	7,0-13,0	(5,5-14,5)	
	290		(11,0-20,0)	
End stop	250	min.50,0		
	400	max.47,0		

2.4 Solenoid

max. cut-in voltage xxx min. 10 V

test voltage xxxxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	0,9-1,1
SVS	max.3,0
A	
B	

Observations

* Manifold-pressure compensator stroke = 6,2 mm
Correction at the adjusting nut. (46)
Please note instructions on sheet 2.

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Testing the hydr. cold-start accelerator:

300 min/1 - 2,2 - 3,8 mm
800 min/1 - 3,7 - 6,2 mm
1200 min/1 - max. 6,2 mm

G24

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 OPE 2,3 h

1. Edition

En

Testoil-ISO 4113

VE 4/10 F 2100 L 156
0 460 404 037

Overflow temperature 45° C

supersedes
company: Opel
engine: 2,3 TD

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/ .

Pre-stroke setting – mm

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1500	5,1-5,5	mm	0,8	
1.2 Supply-pump pressure	1500	5,5-6,1	bar (kgf/cm²)	0,8	
1.3 Full-load delivery with charge-air pressure	1200	58,5-59,5	cm³/1000 strokes	0,8	3,0
Full-load delivery without charge-air pressure	500	36,0-37,0	cm³/1000 strokes	0	
1.4 Idle regulation	290	13,5-17,5	cm³/1000 strokes	0	3,0
1.5 Full-speed regulation	2425	15,0-21,0	cm³/1000 strokes	0,8	
1.6 Start	100	min. 48,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	1500			0	

2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA=0,8 bar	n = rev/min	800	1200	1500	2100
	mm	1,5-2,3(1,2-2,6)	3,4-4,0(3,0-4,4)	(4,6-6,0)	7,9-8,7(7,6-9,0)
2.2 Supply pump	n = rev/min	500	1200	2100	
	bar (kgf/cm²)	3,2-3,8	4,9-5,5(0,8 bar)	6,9-7,5 (0,8 bar)	
Overflow delivery	n = rev/min	500		2100 (0,8 bar)	
	cm³/10 s	55-138(40-153)		55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	2550	max. 6,0		0,8
	2425		(13,5-22,5)	0,8
	2300	28,5-35,5	(27,5-36,5)	0,8
	2100	46,3-48,7	(44,8-50,1)	0,8
	1200		(56,3-61,6)	0,8
	800*	43,5-44,5	(41,3-46,6)	0,3
	500		(33,1-39,9)	0
switch-off	2100			
Idle stop	380	max. 2,5		
	320	7,0-13,0	(5,5-14,5)	
	290		(11,0-20,0)	
End stop	250	min. 50,0		
	400	max. 47,0		

2.4 Solenoid

max. cut-in voltage xxx min. 10 V

test voltage ~~xxxxxxxxx rated voltage 12V.~~

3. Dimensions

Designation	for assembly and adjustment mm
K	3,2-3,4
KF	5,7-5,9
MS	0,9-1,1
SVS	max.3,0
FH *	1,8-2,4
A	
B	

Observations

Manifold-pressure compensator stroke = 6,2 mm
Correction at the adjusting nut. (46)

*operating stroke (KSB)

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Test Specifications Distributor-type Fuel-injection Pumps

4/5

WPP 001/4 CUM 5,9 b
1. Edition

En

VE 6/12 F 1150 R 159-3 Overflow temperature 45° C
0 460 426 043
DHK: 1 688 901 016/207 + 3 bar

supersedes company engine Cummins 6 BT - 590 - 190 kW

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

1. Settings	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	900	4,3-4,7	mm		
1.2 Supply-pump pressure	900	4,4-5,0	bar (kgf/cm²)		
1.3 Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
Full-load delivery without charge-air pressure	900	81,5-82,5	cm³/1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	18,5-24,5	cm³/1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1230	29,0-37,0	cm³/1000 strokes		
1.6 Start	100	min. 97,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	500	900	1150
	mm	1,2-2,0(0,9-2,3)	(3,8-5,2)	5,6-6,4 (5,3-6,7)
2.2 Supply pump	n = rev/min	500		1150
	bar (kgf/cm²)	2,7-3,3		5,4-6,0
Overflow delivery	n = rev/min	500		1150
	cm³/10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press bar (kgf/cm²)
End stop	1290	max. 1,5	
	1230	(28,0-38,0)	
	1150	74,0-77,0 (72,5-78,5)	
	900	(79,0-85,0)	
	750	81,0-85,0 (79,2-86,7)	
	500	80,5-84,5 (78,7-86,2)	
switch-off			
Idle stop	450	max. 1,5	
	375	(16,5-26,5)	
	300	41,5-49,5 (40,5-50,5)	
End stop	130	min. 97,0	
	200	max. 85,0	

2.4 Solenoid — max. cut-in voltage xxx min. 10 V
test voltage xxxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	1,2
A	
B	

Observations

Stop check electric shutoff device at 375 min/1

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Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 5,9 c
1. Edition

En

VE 6/12 F 1050 R 159-6 Overflow temperature 45° C
0 460 426 047
DHK: 1 688 901 016/207 + 3 bar

supersedes -
company Cummins
engine 6 BT - 590 88,5 kW

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

1. Settings

	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1 1 Timing device travel	750	3,3-3,7	mm		
1 2 Supply-pump pressure	750	3,6-4,4	bar (kgf/cm²)		
1 3 Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		4,0 (4,5)
Full-load delivery without charge-air pressure	900	73,0-74,0	cm³/1000 strokes		3,5 (4,5)
1 4 Idle regulation	375	22,0-28,0	cm-/1000 strokes		
1 5 Full-speed regulation	1125	26,0-34,0	cm³/1000 strokes		
1 6 Start	100	min. 97,0	cm³/1000 strokes		
1 7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2 1 Timing device	n = rev/min	500	750	900
	mm	1,4-2,2 (1,1-2,5)	(2,8-4,2)	4,6-5,4 (4,3-5,7)
2 2 Supply pump	n = rev/min	500		900
	bar (kgf/cm²)	2,6-3,2		4,4-5,0
Overflow delivery	n = rev/min	500		1050
	cm³/10 s	55-138 (40-153)		55-138 (40-153)

2 3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	1175	max. 1,5		
	1125		(25,0-35,0)	
	1050	67,5-70,5	(66,0-72,0)	
	900		(70,5-76,5)	
	750	74,0-78,0	(72,2-79,7)	
	500	85,5-89,5	(83,7-91,2)	
switch-off				
Idle stop	450	max. 1,5		
	375		(20,0-30,0)	
	300	55,0-63,0	(54,0-64,0)	
End stop	130	min. 97,0		
	200	max. 85,0		

2 4 Solenoid — max. cut-in voltage xxx min. 10 V
~~xxxxxxxxxx~~ rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	1,2
A	
B	

Observations

Stop check electric shutoff device at 375 min/1

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Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 5,9 e

1. Edition

En

VE 6/12 F 1100 R 159-7 Overflow temperature 45° C

0 460 426 049

DHK: 1 688 901 016/207 + 3 bar

supersedes company Cummins engine 6 BT - 590 91 kW

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

1. Settings	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	750	3,1-3,5	mm		
1.2 Supply-pump pressure	750	3,6-4,2	bar (kgf/cm²)		
1.3 Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
Full-load delivery without charge-air pressure	900	68,5-69,5	cm³/1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	22,0-28,0	cm³/1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1175	28,0-34,0	cm³/1000 strokes		
1.6 Start	100	min. 97,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	500	750	1100
	mm	1,3-2,1 (1,0-2,4)	(2,6-4,0)	5,6-6,4 (5,3-6,7)
2.2 Supply pump	n = rev/min	500	1100	
	bar (kgf/cm²)	2,5-3,1	5,0-5,6	
Overflow delivery	n = rev/min	500	1100	
	cm³/10 s	55-138 (40-153)	55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	1250	max. 1,5		
	1175		(26,0-36,0)	
	1100	62,5-65,5	(61,0-67,0)	
	900		(66,0-72,0)	
	750	69,0-73,0	(67,2-74,7)	
	500	66,0-70,0	(64,2-71,7)	
switch-off				
Idle stop	450	max. 1,5		
	375		(20,0-30,0)	
	300	48,0-56,0	(47,0-57,0)	
End stop	130	min. 97,0		
	200	max. 85,0		

2.4 Solenoid

max. cut-in voltage xxxx min. 10 V

test voltage xxxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	1,2
A	
B	

Observations

Stop check electric shutoff device at 375 min/1

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Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 5,9 m
1. Edition

En

VE 6/12 F 1100 R 159 - 9 Overflow temperature 45° C
0 460 426 051

DHK: 1 688 901 016/207 + 3 bar

supersedes
company Cummins
engine 6 BT - 590

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

1. Settings	Rot speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	750	3,1-3,5	mm		
1.2 Supply-pump pressure	750	3,6-4,2	bar (kgf/cm²)		
1.3 Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
Full-load delivery without charge-air pressure	900	81,5-82,5	cm³/1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	27,0-33,0	cm³/1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1175	37,0-43,0	cm³/1000 strokes		
1.6 Start	100	min. 97,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	500	750	1100
	mm	1,3-2,1 (1,0-2,4)	(2,6-4,0)	5,6-6,4 (5,3-6,7)
2.2 Supply pump	n = rev/min	500	1100	
	bar (kgf/cm²)	2,5-3,1	5,0-5,6	
Overflow delivery	n = rev/min	500	1100	
	cm³/10 s	55-138 (40-153)	55-138 (40-153)	

2.3 Fuel deliveries

Speed control lever	Rot speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	1250	max. 1,5		
	1175		(35,0-45,0)	
	1100	77,0-80,0	(75,5-81,5)	
	900		(79,0-85,0)	
	750	83,0-87,0	(81,2-88,7)	
	500	82,5-86,5	(80,7-88,2)	
switch-off				
Idle stop	450	max. 1,5		
	375		(25,0-35,0)	
	300	56,0-64,0	(55,0-65,0)	
End stop	150	min. 97,0		
	240	max. 85,0		

2.4 Solenoid

max. cut-in voltage xxx min. 10 V
test voltage ~~xxxxxxxxx~~ rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	1,2
A	
B	

Observations

Stop check electric shutoff device at 375 min/1

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Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 5,9 n
1. Edition

En

VE 6/12 F 1050 R 159-12 Overflow temperature 45° C
0 460 426 055

DHK: 1 688 901 016/207 + 3 bar

supersedes
company Cummins
engine 6 BT - 590 88,5 kW

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	750	3,3-3,7	mm		
1.2 Supply-pump pressure	750	2,6-3,2	bar (kgf/cm²)		
1.3 Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
Full-load delivery without charge-air pressure	900	73,0-74,0	cm³/1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	22,0-28,0	cm³/1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	115	26,0-34,0	cm³/1000 strokes		
1.6 Start	100	min. 97,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	500	750	900
	mm	1,5-2,2 (1,1-2,5)	(2,8-4,2)	4,6-5,4 (4,3-5,7)
2.2 Supply pump	n = rev/min	500		900
	bar (kgf/cm²)	2,6-3,2		4,4-5,0
Overflow delivery	n = rev/min	500		1050
	cm³/10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press. bar (kgf/cm²)
End stop	1175	max. 1,5		
	1125		(25,0-35,0)	
	1050	67,5-70,5	(66,0-72,0)	
	900		(70,5-76,5)	
	750	74,0-78,0	(72,2-79,7)	
	500	85,5-89,5	(83,7-91,2)	
switch-off				
Idle stop	450	max. 1,5		
	375		(20,0-30,0)	
	300	55,0-63,0	(54,0-64,0)	
End stop	130	min. 97,0		
	200	max. 85,0		

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	1,2
A	
B	

Observations
Stopkontr. ELAB
bei 375 min-1

2.4 Solenoid	
max. cut-in voltage	xxx min. 10 V
test voltage	xxxxxxxx rated voltage 12V.

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01.85

⑥

Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 5,9 0
1. Edition

En

VE 6/12 F 1200 R 159-13
0 460 426 056

Overflow temperature 45° C

supersedes -
company Cummins
engine 6 BT - 590

DHK: 1 688 901 016/207 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

1. Settings	Rot. speed rev/min	Settings		Charge-air press. bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	750	2,8-3,2	mm		
1.2 Supply-pump pressure	750	3,9-4,5	bar (kgf/cm²)		
1.3 Full-load delivery with charge-air pressure	-	-	cm³/1000 strokes		
Full-load delivery without charge-air pressure	1100	65,5-66,5	cm³/1000 strokes		4,0 (4,5)
1.4 Idle regulation	375	24,5-30,5	cm³/1000 strokes		3,5 (4,5)
1.5 Full-speed regulation	1250	34,5-40,5	cm³/1000 strokes		
1.6 Start	100	min. 97,0	cm³/1000 strokes		
1.7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device	n = rev/min	500	750	1100
	mm	1,1-1,9 (0,8-2,2)	(2,3-3,7)	5,1-5,9 (4,8-6,2)
2.2 Supply pump	n = rev/min	500		1100
	bar (kgf/cm²)	2,8-3,4		5,3-5,9
Overflow delivery	n = rev/min	500		1200
	cm³/10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes	Charge-air press. bar (kgf/cm²)
End stop	1350	max. 1,5	
	1250	(32,5-42,5)	
	1200	62,5-65,5 (61,0-67,0)	
	1100	(63,0-69,0)	
	750	71,0-75,0 (69,2-76,7)	
	400	66,0-70,0 (64,2-71,7)	
switch-off			
Idle stop	450	max. 1,5	
	375	(22,5-32,5)	
	300	49,0-57,0 (48,0-58,0)	
End stop	130	min. 97,0	
	200	max. 85,0	

2.4 Solenoid — max. cut-in voltage xxx min. 10 V; test voltage xxxxxxxxxx rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	1,2
A	
B	

Observations

Stop check electric shutoff device at 375 min/1

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Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 5,9 g1
1. Edition

En

VE 6/12 F 1250 R 173-1
0 460 426 046

Overflow temperature 45° C

supersedes -
company Cummins
engine 6 BT - 590

DHK: 1 688 901 016/207 + 3 bar

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

1. Settings

	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1100	2,1-2,5	mm	0,75	
1.2 Supply-pump pressure	1100	4,3-4,9	bar (kgf/cm²)	0,75	
1.3 Full-load delivery with charge-air pressure	1100	86,0-87,0	cm³/1000 strokes	0,75	4,0 (4,5)
Full-load delivery without charge-air pressure	500	73,5-74,5	cm³/1000 strokes	0	
1.4 Idle regulation	375	20,0-26,0	cm³/1000 strokes	0	3,5 (4,5)
1.5 Full-speed regulation	1450	36,0-44,0	cm³/1000 strokes	0,75	
1.6 Start	100	min. 97,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA = 0,75bar	n = rev/min	900	1100	1250
	mm	0,4-1,2 (0,1-1,5)	(1,6-3,0)	2,9-3,7 (2,6-4,0)
2.2 Supply pump LDA= 0,75 bar	n = rev/min	500		1250
	bar (kgf/cm²)	2,0-2,6		5,0-5,6
Overflow delivery	n = rev/min	500		1250
	cm³/10 s	55-138 (40-153)		55-138 (40-153)

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	1600	max. 1,5		0,75
	1450		(35,0-45,0)	0,75
	1250	82,0-85,0	(80,5-86,5)	0,75
	1100		(83,5-89,5)	0,75
	900	88,5-92,5	(86,7-94,2)	0,75
	750 *	80,0-81,0	(77,5-83,5)	0,3
	500		(70,2-77,7)	0
switch-off				
Idle stop	450	max. 1,5		
	375		(18,0-28,0)	
	300	35,0-43,0	(34,0-44,0)	
End stop	130	min. 97,0		
	200	max. 85,0		

2.4 Solenoid

max. cut-in voltage xxx min. 10 V
~~xxxxxxxxxx~~ rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	2,4
A	
B	

Observations

Stop check electric shutoff device at 375 min/1

Manifold-pressure compensator stroke = 4,5 mm

Correction at the adjusting nut. (46)

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Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 3,9 b

1. Edition

En

VE 4/12 F 1400 R 182

0 460 424 015

DHK 1 688 901 016 / 207 + 3 bar

Overflow temperature 45° C

supersedes
company Cummins
engine 4 BT-390 78 kW

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

1. Settings

	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1 1 Timing device travel	1100	1,4-1,8	mm	0,75	
1 2 Supply-pump pressure	1100	4,7-5,3	bar (kgf/cm²)	0,75	
1 3 Full-load delivery with charge-air pressure	1100	81,5-82,5	cm³/1000 strokes	0,75	4,0 (4,5)
Full-load delivery without charge-air pressure	500	64,0-65,0	cm³/1000 strokes	0	
1 4 Idle regulation	375	20,0-26,0	cm³/1000 strokes	0	3,5 (4,5)
1 5 Full-speed regulation	1600	22,0-28,0	cm³/1000 strokes	0,75	
1 6 Start	100	min. 97,0	cm³/1000 strokes	0	
1 7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2 1 Timing device LDA=0,75 bar	n = rev/min	1000	1100	1250
	mm	0,6-1,4(0,3-1,7)	(0,9-2,3)	2,1-2,9(1,8-3,2)
2 2 Supply pump LDA=0,75 bar	n = rev/min	500	1250	
	bar (kgf/cm²)	2,1-2,7	5,2-5,8	
Overflow delivery	n = rev/min	500	1400	
	cm³/10 s	55-138(40-153)	55-138(40-153)	

2 3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	1750	max. 1,5		0,75
	1600		(20,0-30,0)	0,75
	1475	54,5-62,5	(53,5-63,5)	0,75
	1400	72,0-75,0	(70,5-76,5)	0,75
	1100		(79,0-85,0)	0,75
	900	82,5-86,5	(80,7-88,2)	0,75
	750*	77,5-78,5	(75,0-81,0)	0,3
	500	64,0-65,0	(60,7-68,2)	0
switch-off				
Idle stop	450	max. 1,5		
	375		(18,0-28,0)	
	300	35,0-43,0	(34,0-44,0)	
End stop	130	min. 97,0		
	200	max. 85,0		

2.4 Solenoid

max. cut-in voltage xxxx min. 10 V

test voltage ~~xxxxxxxx~~ rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	4,6
A	
B	

Observations

Stop check electric shutoff device at 375 min/1

Manifold-pressure compensator stroke = 7.5 mm

Correction at the adjusting nut. (46)

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Test Specifications Distributor-type Fuel-injection Pumps

46

WPP 001/4 CUM 3,9 b 1

1. Edition

En

VE 4/12 F 1250 R 182-1 **Overflow temperature 45° C**

0 460 424 016

DHK: 1 688 901 016 / 207 + 3 bar

supersedes
company Cummins
engine 4 BT-390

All test specifications are valid only for Bosch Fuel-injection Pump Test Benches and Testers

Test Instructions and Test Equipment see VDT-W-460/

Pre-stroke setting 0,3 mm ± 0,02 (0,04)

1. Settings	Rot. speed rev/min	Settings		Charge-air press bar (kgf/cm²)	Difference in delivery cm³
1.1 Timing device travel	1100	1,4-1,8	mm	0,75	
1.2 Supply-pump pressure	1100	4,7-5,3	bar (kgf/cm²)	0,75	
1.3 Full-load delivery with charge-air pressure	1100	81,5-82,5	cm³/1000 strokes	0,75	4,0 (4,5)
Full-load delivery without charge-air pressure	500	64,0-65,0	cm³/1000 strokes	0	
1.4 Idle regulation	375	20,0-26,0	cm³/1000 strokes	0	3,5 (4,5)
1.5 Full-speed regulation	1500	29,0-35,0	cm³/1000 strokes	0,75	
1.6 Start	100	min. 97,0	cm³/1000 strokes	0	
1.7 Load-dependent port-closing	-	-			

2. Test Specifications

checking values in brackets ( )

2.1 Timing device LDA=0,75 bar	n = rev/min	1000	1100	1250
	mm	0,6-1,4(0,3-1,7)	(0,9-2,3)	2,1-2,9(1,8-3,2)
2.2 Supply pump LDA=0,75 bar	n = rev/min	500	1250	
	bar (kgf/cm²)	2,1-2,7	5,2-5,8	
Overflow delivery	n = rev/min	500	1250	
	cm³/10 s	55-138(40-153)	55-138(40-153)	

2.3 Fuel deliveries

Speed control lever	Rot. speed rev/min	Fuel delivery cm³/1000 strokes		Charge-air press bar (kgf/cm²)
End stop	1630	max. 1,5		0,75
	1500		(27,0-37,0)	0,75
	1340	68,0-76,0	(67,0-77,0)	0,75
	1250	76,5-79,5	(75,0-81,0)	0,75
	1100		(79,0-85,0)	0,75
	900	82,5-86,5	(80,7-88,2)	0,75
	750*	77,5-78,5	(75,0-81,0)	0,3
	500	64,0-65,0	(60,7-68,2)	0
switch-off				
Idle stop	450	max. 1,5		
	375		(18,0-28,0)	
	300	35,0-43,0	(34,0-44,0)	
End stop	130	min. 97,0		
	200	max. 85,0		

2.4 Solenoid — max. cut-in voltage xxxx min. 10 V; test voltage ~~xxxxxxxxx~~ rated voltage 12V.

3. Dimensions

Designation	for assembly and adjustment mm
K	-
KF	5,2-5,5
MS	1,4-1,65
SVS	4,6
A	
B	

Observations

Stop check electric shutoff device at 375 min/1

Manifold-pressure compensator stroke = 7.5 mm

Correction at the adjusting nut. (46)

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H10

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 m

En 7. Edition

Testoil-ISO 4113

PES 6 A 80 C 410 RS2085X EP/RSV 350-1300 A2B1005D (1) ..2C.. supersedes 10.84
..D.. RS2085X EP/RSV 350-1425 A2B1001D (2)
RS2085X EP/RSV 350-1425 A2B1007D (3)
RS2085X EP/RSV 350-1400 A2B1052D (4)
RS2085T EP/RSV 350-1300 A2B1005D (5)

company Daimler-Benz
engine OM 352 - Unimog
(1+5) 84 PS
(2) 90 PS
(3) 100 PS
(4) 110 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	3,8 - 4,3	0,3			
	6	1,2 - 2,0				
	15	9,8 - 11,0				
200	9	1,8 - 2,6				

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

A2 C
350-1300 A2 B1005 D (1)

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0	-	-	-	lose	350	6,9	1300	8,0+0,1
	x	= 4,25					100	min.17,5	500	9,4+0,1
							350	6,8-7,0	700	9,2+0,2
ca.48 (5)	7,0	1340-1350					620-680=2,0		950	8,3+0,3
	4,0	1400-1430								
	1575	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
(1) 1300	40,0 - 41,0 (38,5-42,5)	1340-1350 *	500	39,5 - 41,5 (37,5-43,5)	100	78,0 - 88,0 (75,0-91,0) = 14,5 - 14,9 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

12.84

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B. Governor Settings

350-1425 A2 B1001D (2)

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.60	1425	16,0	without auxiliary spring			ca.22	350	7,5	1400	0
	1500	11,5					200	19 - 21		
	1560	6,8					350	7,2-7,8	900	0 -0,2
	1530	7,5-10,5					500	5,1-6,6	400	1,3-1,5
(5)	1600	4,0-6,0					700	0,1-4,0		
	1820	0,3-1,0	with auxiliary spring				940	0 - 1		

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm
rev/min	cm³/1000 strokes		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
(2) 1400	41,5 - 42,5 (40,0-44,0)	1455-1465	1000	37,5 - 39,5 (36,0-41,0)	-	-	-	-
			800	39,0-41,0 (37,5-42,5)				
			500 (6a)	40,5-42,5 (39,0-44,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

B. Governor Settings

350-1425 A2 B1007D (3)

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.60	1425	16,0	without auxiliary spring			ca.22	350	7,2	1400	0
	1500	11,4					200	19 - 21		
	1560	6,6					350	6,9-7,5	950	0
	1520	8,0-10,9	with auxiliary spring				600	2,3-4,6	450	0,9-1,1
(5)	1650	2,1-4,4					850	0 -1,5		
	1800	0,3-1,5								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm
rev/min	cm³/1000 strokes		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
(3) 1400	45,5 - 46,5 (44,0-48,0)	1420-1430	1000	41,5 - 43,5 (40,0-45,0)	-	-	-	-
			800	43,0-45,0 (41,5-46,5)				
			500	40,5-42,5 (39,0-44,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

H12

H12 En

The numbers denote the sequence of the tests

B. Governor Settings

..A2B 1052 D (4)

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0	-	-	-	lose	350	6,9	1400	9,0-9,1
	x = 4,0						100	min.19,0	500	9,9+0,1
							350	6,8-7,0	750	9,7-9,9
ca. 55	8,0	1440-1450					650-710	= 2,0	950	9,3-9,6
	4,0	1515-1545								
(2a)	1680	0,3-1,7								

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note: changed to ...) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1400 (4)	52,0-53,0 (50,5-54,5)	1440-1450*	500	46,0-48,0 (44,0-50,0)	100	78,0-88,0 (75,0-91,0) =14,2-14,6 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test of ISO 4113

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca. 51	1300	16,0	without auxiliary spring			ca. 19	350	8,0	1280	0
	1360	10,8							800	0,8-1,0
	1400	6,7					200	19-21		
							350	7,7-8,2		
ca. 49	1300	ca. 8,2					600	2,2-4,3		
(2a)	1400	ca. 3,7	with auxiliary spring				780	0-1,0		
	1520	0,3-1,0								

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note: changed to ...) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1290 (5)	40,0-41,0 (38,5-40,5)	1330-1340*	800	36,5-39,5 (35,0-41,0)	100	72,5-82,5	-	-
			500	36,5-39,0 (35,0-40,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

En

H13

Test Specifications Fuel Injection Pumps and Governors (1A)

40

WPP 001/4 OMB 4,4 d

3. Edition

En

PES 4 A 90 D 410 RS 2195 EP/RSV 325-1050 A 4 B 1079 D

supersede 11.84
company OMB
engine CO 3..

Komb.-Nr. 0 400 874 198

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	10,4+0,1	7,5-7,6	0,3(0,45)			
325	7,4-7,6	-	-			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca. 62	1030	16,0	without auxiliary spring			ca. 26	325	6,5	1030	0
	1080	9,8					100	19 - 21	300	0,2-0,8
	1120	3,0					325	6,2-6,8		
	1050	ca. 9,8					450	1,4-3,7		
(2a)	1120	ca. 3,0					600	0 - 1		
	1220	0,3-1,0	with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limiter: Note changed to rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1050	74,5-75,5 (72,5-77,5)	1075-1090*	600	64,5-67,5 (62,5-69,5)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

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H14

H 44

(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 KHD 19,0 o

1. Edition

En

PE 12 A 85 D 610 LS 2241 RQV 300/1325 AB 938 DL

Komb.-Nr. 0 400 640 076

supersedes company KHD engine F 12 L 413

1- 4- 9- 8- 5- 2- 11- 10- 3- 6- 7- 12
0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5-1,6 (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1325	10,3+0,1	7,2-7,3	0,3(0,5)			
300	6,9-7,1	0,8-1,4	0,4			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1350	15,2-17,8	-	-	-	ca. 13	100	min.8,5	250	0,6-0,9
							300	6,9-7,1	610	2,8-3,1
ca. 65	9,3	1365-1375							960	4,8-5,1
	4,0	1425-1455							325	8,3
	1550	0-1,0				350-520 (3a)				

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2) rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a) rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b) rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel rev/min 8	Control rod travel mm 9
1325	72,0-73,0 (70,0-75,0)	1365-1375*	800	69,0-72,0 (66,5-74,5)	-	-	1325	10,3+0,1
							800	10,9+0,
							1000	10,5+0,2
			1000	66,5-69,5 (64,0-72,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

H15

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WA 5

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 r 2
2. Edition
En

Testoil-ISO 4113

PES 6 A 90 D 410 RS2293 EP/RSV 350-1500 A2B741L
A2C741L

Komb.-Nr. 0 400 876 271

supersedes 12.77
company Daimler-Benz
engine OM 352
82kW/111PS

Set idle-speed auxiliary spring at 2.0 mm control-rod travel, then 1/2 turn back.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1450	3,9-9,0	5,3 - 5,4	0,3(0,45)			
350	7,4-7,6	0,9 - 1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0				ca.9	350	7,5	-	-
	x + 0,75						100	min.19		
							350	7,4-7,6		
ca.60	7,9	1500-1505					365-395	=2,0		
(5)	4,0	1552-1573								
	1630	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7 mm RW	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1450	52,5 - 53,5 (50,5 - 55,5)	1500-1505*	-	-	100	14,7-15,3	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

12.84

H16

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H16

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 MB 5,7 q 2

12. Edition

En

PES 6 A 90 D 410 RS 2293 RSV 350-1300 AOB 783 L
AOC 783 L
Komb.-Nr. 0 400 876 255

supersedes 12.83
company Daimler-Benz
engine OM 352 A
110 kW (150 PS)

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-1,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1300	11,4+0,1	7,6-7,7	0,3(0,45)			
350	7,3-7,5	1,0-1,4	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0 x = 3,5	-	-	-	lose	350	7,4	1300	11,4-11,5
							100	min. 19,0	800	11,7-11,8
							350	7,3-7,5	1050	11,5-11,7
ca. 65 (2a)	10,0	1340-1350					570-630	=2,0		
	4,0	1460-1490								
	1600	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational speed limiter: Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4b) Idle stop: rev/min 8	Control rod travel mm 9
LDA 1300	0,7 bar 75,5-76,5 (73,5-78,5)	1340-1350*	LDA 500	0,7 bar 62,0-64,0 (59,5-66,5)	100	78,0-88,0 (75,0-91,0)	-	-
LDA 800	0,7 bar 67,0-69,0 (64,5-71,5)		LDA 500	0 bar 50,0-52,0 (47,5-54,5)		- 15,1 - 15,5 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

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D. Adjustment Test for Manifold Pressure Compensator

Test at n 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure bar	Measurement Gauge pressure bar	Control rod travel diminution difference mm (1)
PES 6 A .. RS 2293 +RSV..AOB 783 L	0,7		11,7-11,8
		0	10,7-10,8
		0,39	11,4-11,5
		0,28	10,9-11,1

Notes

(1) when n rev/min and gauge pressure bar (maximum full-load control rod travel)

Testing the hydraulic start-locking device

Locking at 0,40 - 0,50 bar
Unlocking at 0,15 - 0,25 bar

(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 s 5
2. Edition

En

PES 6 A 90 D 410 RS 2293 ROV 300-1425 AB 947 L
Komb.-Nr. 0 400 846 365

superseded 6.84
company Daimler-Benz
engine OM 352 A
124 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	10,8+0,1	7,4-7,5	0,3(0,45)			
300	6,8-7,0	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1420	16,0-19,0	-	-	-	ca.12	100	min.7,3	250	0,9-1,1
							300	5,7-5,9	640	3,3-3,7
ca,66	9,8	1435-1445					570-630	= 2,0	1030	5,9-6,2
	4,0	1530-1560					750 max.	1,0	1425	8,7
	1650	0 - 1,0				300-500 (3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1375	0,5 bar 74,0-75,0 (72,0-77,0)	1435-1445*	LDA 500	0 bar 54,0-56,0 (52,0-58,0)	100	71,0-81,0 (68,0-84,0) = 13,7-14,3 mm KW	-	-
		700						

Checking values in brackets

* 1 mm less control rod travel than col 2

12.84

H19

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D. Adjustment Test for Manifold Pressure Compensator

Test at n 1375 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel diminution difference
	Gauge pressure bar	Gauge pressure bar	mm (1)
PES 6 A..RS 2293 + RQV..AB 947 L	0,50		10,8 - 10,9
		0,15	10,4-10,6
		0	10,2-10,3

Notes

(1) when n rev/min and gauge pressure bar (maximum full load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 s 7

2. Edition

En

PES 6 A 90 D 410 RS 2293 RQV 300-1425 AB 949 L

Komb.-Nr. 0 400 846 367

supersedes 9.84
company Daimler-Benz
engine OM 352 A
124 kW

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	10,8+0,1	7,4-7,5	0,3(0,45)			
300	6,8-7,0	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1420	16,0-19,0	-	-	-	ca. 12	100	min.7,3	250	0,9-1,1
ca. 66	9,8	1435-1445					300	5,7-5,9	640	3,3-3,7
	4,0	1530-1560					570-630	= 2,0	1030	5,9-6,2
	1650	0-1,0				300-500 (3a)	750	max.1,0	1425	8,7

Torque control travel a = – mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a) rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1375	0,7 bar 74,0-75,0 (72,0-77,0)	1435-1445* 700	LDA 500	0 bar 54,0-56,0 (52,0-58,0)	100	71,0-81,0 (68,0-84,0) = 13,7-14,3 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

12.84

H21

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D. Adjustment Test for Manifold Pressure Compensator

Test at n 1375 rev/min decreasing/increasing pressure - in bar/gauge pressure

Pump/governor	Setting Gauge pressure - bar	Measurement Gauge pressure - bar	Control rod travel diminution difference mm (1)
PES6A..RS2293	0,70		10,8 - 10,9
+ RQV..AB949L		0,20	10,4 - 10,6
		0	10,2 - 10,3

Notes

(1) when n rev/min and gauge pressure - bar (- maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 5,7 x 1
6. Edition

En

PES 6 A 90 D 410 RS 2293 RQV 300-1400 AB 1138 L
Komb.-Nr. 0 400 846 474

supersedes 5.84
company Daimler-Benz
engine OM 352 A
124 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,1 -2,3) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5 - 7,6	0,3(0,45)			
300	7,6-7,8	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

Tastoil 130 4113

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca.15	100 300	min.9,2 7,6-7,8	250 600 1000 1400	0,9-1,1 3,1-3,4 5,5-5,7 8,2
ca. 61	10,3 4,0 1650	1435-1445 1550-1580 0 - 1,0				350-475 (3a)				

Torque control travel a = -- mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445 *	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	71,0-81,0 (68,0-84,0) = 14,3-14,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

12.84

H23

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1 375 rev/min decreasing / increasing pressure = in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PES 6 A..RS 2293 mit ..AB 1138 L	0,70		11,3 - 11,4
		0	11,0 - 11,1
		0,28	11,1 - 11,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full load control rod travel)

(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 5,7 x

8. Edition

En

PES 6 A 90 D 410 RS 2293 RQV 300-1400 AB 1140 L

Komb.-Nr. 0 400 846 475

supersede 5.84
company Daimler-Benz
engine OM 352 A
124,0 kW (169 PS)

Testoil-SO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5-7,6	0,3(0,45)			
300	7,6-7,8	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca. 15	100	min.9,2	250	0,9-1,1
ca. 61	10,3	1435-1445					300	7,6-7,8	600	3,1-3,4
	4,0	1550-1580							950	5,3-5,5
	1650	0-1,0							1400	8,2
						350-475 (3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445* 700	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	71,0-81,0 (68,0-84,0) = 14,3-14,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.84

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1375 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PES6A..RS2293	0,70		11,3 - 11,4
+ RQV..AB1140L		0	11,0 - 11,1
		0,28	11,1 - 11,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 5,7 x 7

2. Edition

En

PES 6 A 90 D 410 RS 2293 RQV 300-1400 AB 1141 L

Komb.-Nr. 0 400 846 476

supersedes 5.84

company Daimler-Benz

engine OM 352 A
124,0 kW (169 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 stroke 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1375	11,3+0,1	7,5-7,6	0,3(0,45)			
300	7,6-7,8	0,9-1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1420	16,0-19,4	-	-	-	ca. 15	100 300	min.9,2 7,6-7,8	250 600 950 1400	0,9-1,1 3,1-3,4 5,3-5,5 8,2
ca. 61	10,3 4,0 1650	1435-1445 1550-1580 0-1,0				350-475 ③a				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation ②b intermediate speed ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
LDA 1375	0,7 bar 75,0-76,0 (73,0-78,0)	1435-1445* 700	LDA 500	0 bar 56,0-58,0 (54,0-60,0)	100	71,0-81,0 (68,0-84,0) = 14,3-14,7 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.85

J3

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1375 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
PES6A..RS2293	0,70		11,3 - 11,4
+ RQV..AB1141L		0	11,0 - 11,1
		0,28	11,1 - 11,2

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

(1A)

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MWM 6,2 c

4. Edition

Testoil-ISO 4113

PES 6 A 90 D 320/3 RS2393
RS2464

EP/RSV 300-1000 A7 B529DR
325-1500 A2 B529 DR

En
D
C

supersedes 5.79
company M W M
engine TD 226-6

Starting from FD 821, the supplementary idle spring has been changed from 1 424 641 000 to ... 001. New specifications enclosed.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15 + 0,1 mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9	5,1 - 5,5	0,4			
	6	1,6 - 2,6				
200	9	1,9 - 2,9				

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

RSV 300-1000

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
ca.68	1000	16,0	without auxiliary spring			ca.28	300	5,5	-	-
	1050	8,5					100	19 - 21		
	1100	2,4					300	5,7-6,3		
ca.67	1030	8,0-9,0					450	0 - 1		
(5)	1070	2,0-4,0								
	1120	0,3-1,0	with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
Instructions P. 3-4								

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

J5

J5

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B. Governor Settings

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
ca.58	1500	16,0	without auxiliary spring			ca.20	325	5,5	-	-
	1580	9,0					100	19 - 21		
	1630	4,2					325	5,7-6,3		
ca.56	1530	8,0-9,0					420	1,4-3,4		
(5)	1580	3,0-4,0					520	0 - 1		
	1620	0,3-1,0	with auxiliary spring							

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm
rev/min	cm³/1000 strokes		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9
Instructions P. 3-4			(6a)					

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
(5)										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						Control rod travel mm
rev/min	cm³/1000 strokes		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

C. Settings for Fuel Injection Pump with Fitted Governor

engine power Full-load delivery Control-rod stop Test oil temp 40°C (104°F)		Rotational-speed limitation	Fuel delivery characteristics		Starting fuel delivery Idle switching point		Intermediate rotational speed Torque-control travel	
rev/min	cm^3/1000 strokes	rev/min	rev/min	cm^3/1000 strokes	rev/min	cm^3/1000 strokes	rev/min	mm
1	2	3	4	5	6	7	8	
F 150	PS / 2500 min^{-1}							
1250	87,0-89,0	1270	800	84,0-87,0				
B 143	PS / 2500 min^{-1}							
1250	84,0-86,0	1270	800	79,5-82,5				
F 148	PS / 2400 min^{-1}							
1200	86.0-88,0	1220	800	84,0-87,0				
B 141	PS / 2400 min^{-1}							
1200	82,0-84,0	1220	800	79,5-82,5				
F 146	PS / 2300 min^{-1}							
1150	84,0-86,0	1170	800	84,0-87,0				
B 139	PS / 2300 min^{-1}							
1150	81,0-83,0	1170	800	79,5-82,5				
A 125	PS / 2300 min^{-1}							
1140	80,0-83,0	---------	1150	74,0-76,0				
F 143	PS / 2200 min^{-1}							
1100	84,0 - 86,0		1120	84,0-87,0				
B 137	PS / 2200 min^{-1}							
1100	81,0-83,0	1120	800	79,5-82,5				
A 134	PS / 2200 min^{-1}							
1090	80,5-83,5	--------	1100	74,0-76,0				
F 140	PS / 2100 min^{-1}							
1050	85,0-87,0	1070	800	84,0-87,0				
B 134	PS / 2100 min^{-1}							
1050	82,0-84,0	1070	800	79,5-82,5				
A 122	PS / 2100 min^{-1}							
1040	80,5-83,5	---------	1050	76,0-78,0				
F 135	PS / 2000 min^{-1}							
1000	86,0-88,0	1020	800	84,0-87,0				
B 130	PS / 2000 min^{-1}							
1000	81,0-83,0	1020	800	79,5-82,5				
A 119	PS / 2000 min^{-1}							
990	80,5-83,5	----------	1000	73,0-75,0				
B 123	PS / 1800 min^{-1}							
900	82,0-84,0	910	750	78,5-81,5				
A 112	PS / 1800 min^{-1}							
890	89,5-92,5	----------	900	75,0-77,0				
B 110	PS / 1500 min^{-1}							
750	86,0-88,0	760	650	74,0-77,0				

-A 100 PS See page 4

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

A 100	BHP at 1500 min/1			
740	87.5 - 90.5	------	750	86.0 - 88.0

The nameplate described on MWM 1.5 a has recently been expanded - in columns n = rotational speed and Q = full-lod fuel delivery - to include two rotational speeds and two fuel deliveries, to enable more exact adjustment in the case of regulators with torque control.

Accordingly - in deviation from VDT-WPP 001/4, 1st addendum, Adjustment of the Regulator and the Pump - the following points will apply:

(1) Adjustment of the control spring: remains.

(2) Adjustment of the full-load fuel delivery: in accordance with nameplate, n = (1st rotational speed) and Q = (1st fuel delivery), or according to Sect. C, Columns 1-2.

(3) Adjustment of the torque control: is adjusted until the control-rod travel is changed as indicated in (2), or according to the new nameplate, until the 2nd fuel delivery is obtained at the 2nd rotational speed; or accordance with Section C, Columns 4-5.

(6) Start of speed regulation: is readjusted according to the nameplate n = (1st rotational speed + 20 min/1) or Column 3.
However, for A-power output: readjust until the fuel delivery as shown in Columns 4-5 has been attained.

New pumps from the warehouse in Stuttgart do not have the spring retainer! For that reason, use the old spring retainers, or order new ones from MWM in accordance with the old nameplate!

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 8,3 1 4
1. Edition

En

PE 6 A 90 D 410 RS 2524/Z RSV 250-900 A 7 B 2124 L

Komb.-Nr. 0 400 676 165/Z

Values apply to fuel-injection test tubing
1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

supersedes -
company DAF
engine DH 825 (1800)

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,3-2,4 (2,25-2,45) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque-control valve) mm 6
750	9,4-9,5	7,9-8,1	0,4 (0,6)			
250	6,3-6,5	1,9-2,5	0,2 (0,55)			
Port closing difference = 1,1-1,2 mm between control-rod travel 9 mm and control-rod travel 21 mm						

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
loose	800	0,3-1,0	-	-	-	ca.16	250	6,4	-	-
	x =						100	min.19		
							260-320	2,0		
ca.49 (2a)	8,4**910-920									
	4,0 925-945									
	1100	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limiter: Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
750	78,5-80,5 /77,0-82,0)	910-920*	-	-	100	19,5-21,0 mm RW	250	6,4
** Speed difference between control-rod travel 8,4 mm and 4,0 mm = 15-25 min/1								

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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Test Specifications Fuel Injection Pumps and Governors

WPP001/4 KHD 1 g 7

2. Edition

En

Testoil-ISO 4113

PES5A80D410/3RS2526 RSV 325-1200A8B2147L
A8C2147 L

1-3-5-4-2 je 72° ±0,5° (±0,75°)

Komb.-Nr. 0 400 865 024

supersedes 9.82
company KHD
engine F5L912
65 kW (88 PS)
Schlepper DX 90-S 22

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,9-2,0 (1,85-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1200	11,5+0,1	6,0 - 6,1	0,2(0,35)			
325	8,9-9,1	0,9 - 1,5	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0	-	-	-	ca.19	325	8,5	1200	11,5+0,1
		X = 4,5					325	8,9-9,1	500	12,1+0,1
ca. 56	1240-1250	= 10,5					465-525	=2,0	950	11,8+0,2
(5)	1285-1315	= 4,0								
	1450	= 0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1200	60,0 - 61,0 (58,5 - 62,5)	1240-1250*	800	58,0 - 59,0 (56,5 - 60,5)	100	19,0-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

1.85

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J 10

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 KHD 6.1 d
4. Edition
En

Testoil-ISO 4113

PES 6 A 80 D410/3 RS2527 EP/RSV 325-1150 A8 B2014DL
Komb.-Nr. 0 400 866 084 A8 C2014 L

supersedes 4.84
company K H D
engine F6 L912
74 kW (102PS)
bei 2300 min^{-1}
Schlepper DX 110 - S 31

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,90-2,00 (1,35-2,05) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery 2527 cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,8 +0,1	5,6 - 5,7	0,2(0,35)			
325	8,9-9,1	0,8 - 1,2	0,2(0,3)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0				ca.23	325	8,5	1150	11,8+0,1
							100	min.19,5	950	12,0+0,2
							325	8,9-9,1	775	12,5+0,2
							390-450	= 2,0	450	12,5+0,2
ca.58 (5)	10,8	1190-1200								
	4,0	1235-1265								
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
1150	56,0 - 57,0 (54,5 - 58,5)	1190-1200 *	775	54,0 - 56,0 (52,0 - 58,0)	-	-	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

1.85

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 11,1p14
3. Edition

En

PES 6 A 95 D 410 LS 2542 RQ 250/1100 AB 965 DL
Komb.-Nr. 0 400 846 424

supersedes 10.83
company MAN
engine D2566 M/MF
177 kW (240 PS)

Testcil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5-1,6 (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0±0,1	12,5-12,7	0,3(0,6)			
250	6,0-6,2	1,1 - 1,7	0,3(0,5)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,0	1145-1160	250	6,1	100	min.7,6	-	-
				4,0	1185-1215			250	6,0-6,2		
				1300	0- 1,0			360-420=2,0			
								500	max. 1,0		

Torque-control travel on flyweight assembly dimension a = 0 mm

Speed regulation at 1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel mm / cm³/1000 strokes 7
1100	124,5-126,5 (122,5-128,5)	-	750	110,5-113,5 (108,0-116,0)	100	121,5-131,5 (118,5-134,5) = 14,0 - 14,6 mm RW
			500	max. 113,5 (max. 116,0)		

Checking values in brackets

1.85

J12

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 11,1 p 1
7. Edition
En

Testoil-ISO 4113

PES 6 A 95 D 410 LS 2542 Z RQV 250-1100 AB 1038 DL (1)
.. LS 2542 RQ 250/1100 AB 1049 DL (2)
.. LS 2542 RQ 250/1050 AB 965 DL (3)

Komb.-Nr. 0 400 846 425 (1) MAN-Nr. 1-7960
0 400 846 427 (2) MAN-Nr. 1-7946
0 400 846 418 (3) MAN-Nr. 1-7941

supersedes 7.84
company: MAN
engine D2566
(1) MSFV-162 kW/2200 min/1
(2) MFOR-162 kW/2200 min/1
(3) MF -172 KW/2100 min/1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,50-1,60 (1,45-1,65) mm (from BDC) Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 8
1100	11,3+0,1	11,3 - 11,5	0,3(0,6)	12,0-12,1	12,9 - 13,1	n 1050
250	5,9-6,1	0,8 - 1,5	0,3(0,5)	6,5-6,7	1,1 - 1,7	

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

(1)

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ⑦ rev/min 10	mm 11
max.	1140	14,4-17,6	-	-	-	ca.13	100	min.7,5	200	0,5-1,2
							250	5,9-6,1	700	4,3-4,6
							320-380	=2,0	1140	8,3
							450	0-1		
ca.42	10,3	1140-1150				③a				
	4,0	1175-1205								
	1300	0 - 1,0								

Torque control travel a = 0,35 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation ②b intermediate speed ④a rev/min 3	Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery ⑥ idle switching point rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9 +0,1
1100	112,5-114,5 (110,5-116,5)	1140-1150*	700	102,5-105,5 (100,5-107,5)	100	124,0-134,0	1100	11,3
							700	11,7
			500	max. 106,5 (108,5)	250	6,0 mm RW	500	11,7
					100-170 (80-190)			

Checking values in brackets

* 1 mm less control rod travel than col 2

12.84

J13

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J13

B. Governor Settings

Checking of slider PRG check (1)		Full load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	10,2	1145-1160	250	6,0	100	min.7,5	1100	11,2-11,3
								250	5,9-6,1	845	11,2-11,5
				4,0	1185-1215					750	11,4-11,6
								360-400 =2,0		600	11,6-11,7

Torque control travel on flyweight assembly dimension a 0,3 mm

Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
(2) 1100	112,5 - 114,5 (110,5 - 116,5)		700	102,5 - 105,5 (100,5 - 107,5)	100	125,0-135,0 (122,0-138,0) = 15,0-16,0mmRW
			500	max. 106,5 (max. 108,5)	250	6,0 mm RW

Checking values in brackets

B. Governor Settings

(3)

Checking of slider PRG check (1)		Full load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	11,0	1095-1110	250	6,6	100	min. 8,1	-	-
				4,0	1145-1170			250	6,5-6,7		
								375-415=2,0			
1250	0 - 1							450	0 - 1		

Torque control travel on flyweight assembly dimension a 0 mm

Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full load delivery on governor control lever Test oil temp 40°C (104 F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
(3) 1050	127,5 - 129,5 (125,5 - 131,5)		500	max. 113,5 (115,5)	100	124,0 - 134,0 6,0 mm RW

Checking values in brackets

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MAN 11,1 p 20
3. Edition

En

PES 6 A 95 D 410 LS 2542 RQV 250-1100 AB 1177 DL
Komo.-Nr. 0 400 846 516

supersedes 5.84
company MAN
engine D 2566 M/MF
177 kW/2200 min^{-1}
MAN-Nr. 2-7440

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,5-1,6 (1,45-1,65) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	12,0+0,1	12,5 - 12,7	0,35(0,6)			
250	5,9-6,1	0,9-1,4	0,35(0,5)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1115	15,2-17,8	-	-	-	ca.13	100	min.8,2	200	0,7-0,9
ca.47	11,0	1140-1150					250	6,7-6,9	500	3,4-3,8
	4,0	1180-1210					335-395=2,0		800	4,9-5,4
	1300	0-1,0							1100	7,6
						(3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1100	124,5-126,5 (122,5-128,5)	1140-1150*	750	113,0-116,0 (110,5-118,5	100	121,5-131,5 (118,5-134,5 = 14,7-15,3 mm RW	-	-
			500	107,5-113,5 (105,0-116,0				

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.85

J15

J15

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 DAF 6,2 1
3. Edition
En

Testoil-ISO 4113

PE 6 A 85 D 320 RS2546 RQ 250/1200 AB1023R

Komb.-Nr. 0 400 646 263

supersede 9.82
company D A F
engine DD 615

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	9,5-9,6	5,1 - 5,2	0,3(0,45			
250	5,9-6,1	0,9 - 1,5	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	19,2-20,8	550	20,0	8,5	1245-1260	250	6,0	100	min.7,5	-	-
				4,0	1310-1340			250	5,9-6,1		
VH	max. = 46°			1450	0 - 1,0			305-345	=2,0		
								450	0 - 1		

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation At 1245 - 1260 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
1000	50,5 - 51,5 (48,5 - 53,5)	-	-	-	100	19,5-21,0 mm RW

Checking values in brackets

12.84

J16

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②

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 6,2 k
7. Edition

En

PE 6 A 85 D 320 RS 2546 RQ 250/1300 AB 1023 R (1)
EP/RSV 250-1300 A 1 B 2025 R (2)

Supersedes 8.82 D A F DF 615

Komb.-Nr. 0 400 646 255 (1)
0 400 676 154 (2)

Specifications apply to test tubing 1 680 750 015 !

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

TestCrSO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-1,30) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1000	10,4+0,1	5,6 - 5,7	0,3(0,45)			
250	8,1-8,3	1,5 - 2,0	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ( )

B. Governor Settings

POrt closing difference between control.rod travel 9 mm and max. = 3 - 4° camshaft

Checking of slider		Full load speed regulation				Idle speed regulation				Torque control	
		Setting point		Test specifications		Setting point		Test specifications			
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	rev/min 5	Control rod travel mm 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	19,6-20,4 VH max. = 46°	550	20,0	9,4 4,0 1500	1345-1360 1425-1455 0 - 1,0	250	6,5	100 250 300-370 400	min. 9,7 8,1-8,3 =2,0 max. 1,0	-	-

Torque-control travel on flyweight assembly dimension a mm Speed regulation At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F)		Control rod stop	Fuel delivery characteristics		Starting fuel delivery	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/100 strokes 7
1000	56,0-57,0 (54,0-59,0)	-	-	-	100	115,0-125,0 (112,0-128,0) - 19,5-21,0 mm RW

Checking values in brackets

12.84

J17

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J17

B. Governor Settings

EP/RSV..2025 R

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
lose	800 X =	0,3-1,0 4,0				ca.21	250	5,5	1000	10,4+0,1
							250	5,9-6,1	400	10,4+0,2
ca.67 (5)	9,4	1340-1350					470-530=2,0		300	10,7+0,5
	4,0	1380-1410								
	1540	0,3 - 1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full load stop		(6) Rotational speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						
rev/min	cm³/1000 strokes		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9
1000	56,0-57,0 (54,0-59,0)	1340-1350*	- (6a)	-	100	115,0-125,0 (112,0-128,0) = 19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

B. Governor Settings

(1) Upper rated speed			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	Degree of deflection of control lever	rev/min	Control rod travel mm	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9	10	11
(5)										

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop		(6) Rotational-speed limitat	(3a) Fuel delivery characteristics		Starting fuel delivery idle		(5a) Idle stop	
Test oil temp 40°C (104°F)		Note changed to rev/min						
rev/min	cm³/1000 strokes		rev/min	cm³/1000 strokes	rev/min	cm³/1000 strokes	rev/min	Control rod travel mm
1	2	3	4	5	6	7	8	9

Checking values in brackets

* 1 mm less control rod travel than col 2

J18

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 DAF 6,2 m
7. Edition

En

Testoil-ISO 4113

PE 6 A 85 U 320 RS 2546 RSV 250-750 A 7 B 2125 R
Komb.-Nr. 0 400 676 168

supersedes 9.84
company DAF
engine DD 575 DF

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,1 - 2,3) mm (from BDC) RW = 9 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
750	12,1+0,1	6,2 - 6,4	0,3(0,45)			
250	8,4-8,6	0,9 - 1,5	0,25(0,45)			
		Port closing difference between control-rod travel 9mm and max. = 3,5 - 4,5° camshaft				

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	800	0,3 - 1,0	-	-	-	ca. 16	250	8,5	-	-
	x =	4,5					250	8,4-8,6		
							260-320=2,0 **			
(5) a.40	11,1	770-780								
	4,0	785-805								
	955	0,3-1,7								

The numbers denote the sequence of the tests

Set idle-speed auxiliary spring at 2.0 mm control-rod travel, then 1/2 turn back.

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat.: Note changed to ... rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
750	61,5 - 63,5 (59,5 - 65,5)	770-780*	-	-	100	19,5-21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.84

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Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 6,2 m 2
1. En
En

PE 6 A 85 D 320 RS 2546/x RSV 250-900 A 7 B 2125 R
Komb.-Nr. 0 400 676 168/x
Specifications apply to test tubing 1 680 750 015

supersedes
company DAF
engine DF 615 (1800)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
750	12,6+0,2	6,7 - 6,9	0,3(0,5)			
250	8,4-8,6	0,9 - 1,5	0,2(0,45)			
			Port closing difference = 0,6 - 0,7 mm between control-rod travel 9 mm and control-rod travel 21 mm.			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min			Intermediate rated speed			(4) Lower rated speed			(3) Torque control	
Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	4	5	6	Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	rev/min 10	Control rod travel mm 11
lose	700	0,3-1,0	-	-	-	ca. 16	250	8,5	-	-
	x =						260-320	2,0		
ca. 48 (2a)	11,6**	910-920								
	4,0	925-945								
	1100	0,3-1,7								

The numbers denote the sequence of the tests

** Speed difference between control-rod travel 11,6 mm and 4,0 mm = 15-25 min/1

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full load stop Test oil temp 40°C (104°F)		(6) Rotational-speed limitat Note changed to)	(3a) Fuel delivery characteristics		Starting fuel delivery (5) Idle		(4a) Idle stop	
rev/min 1	cm³/1000 strokes 2	rev/min 3	rev/min 4	cm³/1000 strokes 5	rev/min 6	cm³/1000 strokes 7	rev/min 8	Control rod travel mm 9
750	67,0-69,0 (65,5-70,5)	910-920*	-	-	100	19,5-21,0 mm RW	250	8,5

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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J20

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 6,2 m 1
1. Edition

En

PE 6 A 85 D 320 RS 2546/y RSV 250-750 A 7 B 2125 R
Komb.-Nr. 0 400 676 168/y

supersedes
company DAF
engine DF 615 (1500)

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,15-2,25 (2,10-2,30) mm (from BDC) bei RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
750	2,6+0,2	6,7 - 6,9	0,3(0,5)			
250	8,4-8,6	0,9 - 1,5	0,2(0,45)			
			Port closing difference = 0,6 - 0,7 mm between control-rod travel 9 mm and control-rod travel 21 mm.			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	700	0,3-1,0	-	-	-	ca. 16	250	8,5	-	-
	x =						260-320	2,0		
ca. 40 (2a)	11,6**	770-780								
	4,0	785-805								
	955	0,3-1,7								

The numbers denote the sequence of the tests

** Speed difference between control-rod travel 11,6 mm and 4,0 mm = 15-25 min/1

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full load stop, Test oil temp 40°C (104 F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat, Note changed to rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
750	67,0 - 69,0 (65,5-70,5)	770-780*	-	-			250	8,5
					100	19,5-21,0 mm RW		

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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Test Specifications Fuel Injection Pumps and Governors

UPP 001/4 DAF 6,2i2
3. Edition
En
supersedes 82
company DAF
engine DT 615

Testoil-ISO 4113

PE 6 A 90 D 320 RS 2547 RSV 250-1200 A5B 2133 R
A5C 2133 R
Komb.-Nr. 0 400 676 169
Specifications apply to test tubing 1 680 750 015 !

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2-2,3 (2,15-2,35) mm (from BDC) HW=8,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	10,8+0,1	7,2 - 7,3	0,3(0,45)			
250	5,9-6,1	0,9 - 1,3	0,25(0,45)			
			Port closing difference between control-rod travel 9 mm and max. =2,5-3,5° camshaft			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
1050	800	0,3-1,0	-	-	-	ca. 22	250	5,5	1000	10,8+0,1
	x =	3,25							400	11,0+0,1
							250	5,9-6,1	300	11,2+0,5
ca.54 (5)	9,8	1240-1250					585-645	2,0		
	4,0	1310-1340								
	1490	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note: changed to .. rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 71,5 - 72,5 (69,5 - 74,5)	1240-1250*	LDA 600	0 bar 51,5 - 53,5 (49,0 - 56,0)	100	135,0-145,0 (132,0-148,0)	-	-

Checking values in brackets

* 1 mm less control rod travel than col 2

11.84

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J22

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 1000 rev/min decreasing / increasing pressure - in bar gauge pressure DAF 6,2 i 2

Pump/governor	Setting Gauge pressure bar	Measurement Gauge pressure bar	Control rod travel diminution / difference mm (1)
.. RS 2547 with	0,7		10,8 - 10,9
RSV .. A5B 2133 R		0,25	10,6 - 10,7
		0,21	10,1 - 10,4
		0	9,8 - 10,0

Notes

(1) when n rev/min and gauge pressure bar (maximum full load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps and Governors

40

(1A)

WPP 001/4 DAF 8,3 n 4

1. Edition

En

PE 6 A 95 D 410 RS 2575/x RSV 250-900 A 7 B 2124 L

Komb.-Nr. 0 400 676 172/x

Specifications apply to test tubing 1 680 750 015

Supersedes

company DAF

engine DHTD 825 (1800)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0 - 2,1 (1,95-2,15) mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
750	13,2+0,1	11,1 - 11,3	0,4(0,6)			
250	6,0-6,2	0,7 - 1,3	0,2(0,55)			

Port closing difference = 0,7 - 0,8 mm between control-rod travel 9 mm and control-rod travel 21 mm.

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	700	0,3-1,0	-	-	-	ca. 16	250	6,1	-	-
	x	=					260-320	2,0		
ca. 48 (2a)	12,2 **	910-920								
	4,0	925-945								
	1100	0,3-1,7								

The numbers denote the sequence of the tests

** Speed difference between control-rod travel 12,2 mm and 4,0 mm = 15-25 min/1

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational speed limiter, Note changed to rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
750	110,5-112,5 (108,5-114,5)	910-920*	-	-	100	19,5-21,0 mm RW	250	13,25

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.84

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J24

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 8,3 n 3

1. Edition

En

PE 6 A 95 D 410 RS 2575/Z RSV 250-900 A 7 B 2124 L

Komb.-Nr. 0 400 676 166/Z

Specifications apply to test tubing 1 680 750 015

supersedes -
company DAF
engine DU 825 (1800)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,0-2,1 (1,95-2,15) mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque control valve) mm 6
750	12,5-12,6	10,1-10,3	0,4(0,6)			
250	6,0-6,2	0,7-1,3	0,2(0,55)			

Adjust the fuel delivery from each outlet according to the values in [ ]

B. Governor Settings

Port closing difference = 0,7 - 0,8 mm between control-rod travel 9 mm and control-rod travel 21 mm.

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	700 X =	0,3-1,0	-	-	-	ca.15	250	6,1	-	-
							260-320	2,0		
ca.48 (2a)	11,5	910-920								
	4,0 **	925-945								
	1100	0,3-1,7								

The numbers denote the sequence of the tests

** Speed difference between control-rod travel 11,5 mm and 4,0 mm = 15-25 min/1

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
750	100,5-102,5 (98,5-104,5)	910-920*	-	-	100	19,5-21,0 mm RW	250	6,1

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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K1

Test Specifications Fuel Injection Pumps (1A) and Governors

WPP 001/4 DAF 6,2 n 1
1. Edition

En

PE 6 A 90 D 320 RS 2577/z RSV 250-900 A 7 B 2125 R
Komb.-Nr. 0 400 676 167/z

supersedes
company DAF
engine DT 615 (1800)

Specifications apply to test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2-2,3 (2,15-2,35) mm (from BDC) bei RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
750	11,0-11,1	7,5-7,7	0,4 (0,5)			
250	5,9-6,1	0,8-1,4	0,2 (0,45)			
			Port closing difference = 0,7 - 0,8 mm between control-rod travel 9 mm and control-rod travel 21 mm.			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	700	0,3-1,0	-	-	-	ca. 15	250	6,0	-	-
	x =						260-320	2,0		
ca. 45	10,0**	910-920					100	min. 19,0		
(2a)	4,0	925-945								
	1100	0,3-1,7								

The numbers denote the sequence of the tests

** Speed difference between control-rod travel 10,0 mm and 4,0 mm = 15-25 min/1

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limiter, Note changed to): rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
750	75,0-77,0 (73,5-78,5)	910-920*	-	-	100	19,5-21,0 mm RW	250	6,0

Checking values in brackets

* 1 mm less control rod travel than col 2

10.84

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K2

K2

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 KHD 6,1 k 3
6. Edition

En

PES 6 A 85 D 410/3 RS 2592 RQV 300-1250 AB 1188 L
Komb.-Nr. 0 400 836 028

supersedes 10.84
company KHD
engine BF 6 L 913
118 kW/2500 min^{-1}

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO

A. Fuel Injection Pump Settings

Port closing at prestroke 2,2 - 2,3 (2,15-2,35) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1250	12,0+0,1	8,9 - 9,0	0,3(0,5)			
300	6,9-7,1	0,9 - 1,5	0,25(0,45)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1290	15,2-17,8	-	-	-	ca. 13	100 300	min.8,5 6,9-7,1	325 850	1,5-1,7 4,9-5,1
ca. 65	11,0 4,0	1290-1300 1375-1405				355-470 (3a)			1150 1400	7,1-7,3 9,9

Torque control travel a = 0,8 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1250	0,7 bar 86,5-89,5 (86,5-91,5)	1290-1300*	LDA 600	0,7 bar 82,5-84,5 (80,0-87,0)	100	110,-120,0 (107,0-123,0) = 17,1-17,5 mm RW	1250 500 775 1025	12,0+0,1 12,8+0,1 12,5+0,2 12,1+0,3
LDA 800	0,7 bar 85,0-88,0 (83,0-90,0)		LDA 500	0 bar 59,0-61,0 (57,0-63,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.84

K3

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D. Adjustment Test for Manifold Pressure Compensator

KHD 6,1 k 3

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
PES 6 A..RS 2592 + RQV..AB 1188 L	0,70		12,8 - 12,9
		0	10,9 - 11,1
		0,26	12,4 - 12,5
		0,19	11,9 - 12,1

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 4,0 a
1. Edition

En

PES 4 A 90 D 410 RS 2666 RQV 300-1400 AB 1065-5 L
Komb.-Nr. 0 400 844 083
Specifications apply to test tubing 1 680 750 015

supersedes
company Daimler-Benz
engine OM 364
66 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,25-2,35 (2,20-2,40) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1400	10,9+0,1	6,4-6,5	0,3(0,45)			
300	8,7-8,9	0,8-1,2	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1500	15,2-17,8	-	-	-	ca.21	100	min.10,3	300	0,8-1,3
ca.65	9,9	1440-1450					300	8,7-8,9	500	2,3-2,8
	4,0	1545-1575					570-630	= 2,0	750	4,1-4,3
	1630	0-1,0							1500	8,5
						(3a)				

Torque control travel a = 1,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a) rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1400	63,5-64,5	1440-1450*	500	50,0-53,0	100	78,0-88,0	1400	10,9+0,1
	(61,5-66,5)			(47,5-55,5)		(75,0-91,0)	500	12,3+0,1
			900	52,5-55,5		= 16,3-16,7	850	11,9+0,2
				(50,0-58,0)		mm RW	1200	11,2+0,3

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.84

K5

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K5

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 12,7 t 1
2. Edition

En

PE 8 MW 100/720 LS 1117
RQ 300/1000 MW 52
0 403 548 005

supersedes TO.84
company KHD
engine F 8 L 413 F
150 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20 (3,05-3,25) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	10,7+0,1	9,2-9,4	0,35(0,6			
300	7,1-7,2	1,1-1,5	0,35(0,55)			
1000	9,5-9,6		0,5(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Full-load speed regulation Test specifications ④		Idle speed regulation Setting point		Idle speed regulation Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
520	19,2-20,8	520	20,0	8,5	1045-1060	300	7,1	100	min. 9,1	975	9,5-9,6
1200	0 - 1,0			4,0	1080-1110			300	7,1-7,2	650	10,7-10,8

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
600	92,0-94,0 (90,0-96,0)		1000	87,0-89,0 (84,5-91,5)	100	140,0-150,0 (137,0-153,0)
					300	11,0-15,0 (8,5-17,5)
					100-230	(80-250)

Checking values in brackets

01.85

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 KHD 12,7 t

2. Edition

En

PE 8 MW 100/720 LS 1117
RQ 300/1000 MW 52-1
0 403 548 009

superseded 10.84
company KHD
engine F 8 L 413 FZ
177 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20 (3,05-3,25) mm (from BDC) RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
650	11,4+0,1	10,6-10,8	0,35(0,6)			
300	7,5-7,6	1,1-1,5	0,35(0,55)			
1150	10,0+0,1		0,5 (0,7)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
550	19,2-20,8	550	20,0	9,0	1195-1210	300	7,5	100	min.9,0	1150	10,0-10,1
				4,0	1240-1270			300	7,5-7,6	650	11,4-11,5
1350	0 - 1,0							350-380 = 2,0		850	10,5-10,8

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
650	106,0-108,0 (104,0-110,0)		1150	96,0-98,0 (93,5-100,5)	100	130,0-140,0 (127,0-143,0)
					300	11,0-15,0 (8,5-17,5)
					100-230	(80-250)

Checking values in brackets

01.85

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K7

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 KHD 12,7 t 2
2. Edition

En

PE 8 MW 100/720 LS 1117
RQ 300/1150 MW 53
0 403 548 006
1- 8- 7- 2 - 6 - 5 - 4 - 3
0-45-90-135-180-225-270-315

supersedes 10.84
company KHD
engine BF 8 L 413 FZT
206 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,10-3,20 (3,05-3,25) mm (from BDC) RW-9-12 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
800	13,3+0,1	12,3-12,5	0,35(0,6)			
300	7,5-7,6	1,1-1,5	0,35(0,55)			
1150	12,3+0,1		0,5 (0,7)			
400	12,4+0,1					

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check (1)		Full-load speed regulation Setting point		Test specifications (4)		Idle speed regulation Setting point		Test specifications (5)		Torque control (3)	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	11,3	1195-1210	300	7,5	100	min.9,1	1150	12,3-12,4
				4,0	1230-1260			300	7,5-7,6	800	13,0-13,3
										650	13,3-13,4
1350	0 - 1,0										

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) (2)		Control rod stop (3a)	Fuel delivery characteristics (3b)		Starting fuel delivery Idle speed (6)	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
LDA 800	0,8 bar 123,5-125,5 (121,5-127,5)		LDA 1150	0,8 bar 118,0-120,0 (115,5-122,5)	100	140,0-150,0 (137,0-153,0)
			LDA 400	0 bar 96,0-98,0 (93,5-100,5)	300	11,0-15,0 (8,5-17,5)
					100-230	(80-250)

Checking values in brackets

01.85

K8

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K8

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
LS 1117 mit MW 53	0,8		13,3-13,4
		0,19	13,0-13,1
		0,13	12,6-12,7
		0	12,4-12,5

Notes

(1) when n rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MAN 17,4 a 5

En 1. Edition

PE 10 P 110 A 520/5 LS 846 RQV 250-1150 PA 673-1

Komb.-Nr. 0 401 849 183

1- 8- 7- 6- 3- 5- 2- 10- 9- 4
0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)

supersedes-
company MAN
engine D 2540 MTF 310 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC) Zyl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,5+0,1	13,2-13,5	0,4(0,75)			
250	6,9-7,1	1,1-1,6	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1170	15,2-17,8	-	-	-	ca. 12	100	min.8,5	350	2,0-2,5
ca. 65	10,5	1190-1200					250	6,9-7,1	850	6,5-6,7
	4,0	1310-1340					400-460=2,0		1150	8,4
	1450	0-1,0				③a				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed ②b ④a rev/min 3	Fuel delivery characteristics high idle speed ⑤a ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point ⑥ rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
LDA 1150	0,9 bar 132,0-135,0 (129,5-137,5)	1190-1200*	LDA 750	0,9 bar 122,0-126,0 (119,0-129,0)	100	150,0-170,0 (146,0-174,0)	-	-
			LDA 500	0 bar 115,0-118,0 (112,5-120,5)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

K10

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure = in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 10 P.. LS 846 +RQV.. PA 673-1	0,90		11,5-11,6
		0	11,1-11,2
		0,32	11,3-11,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

K11

KM
En

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 17,4 b 9

1. Edition

En

PE 10 P 120 A 520/5 LS 850-1 RQ 750 PA 663-3

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
0-27-72-99-144-171-216-243-288-315° ± 0,5 ° (± 0,75 °)
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
company MAN
engine D 2540 MLE 283 kW
Komb.-Nr. 0 401 849 174

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,9+0,1	19,5-19,7	0,5(0,9)			
250	4,4-4,6	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Full-load speed regulation Test specifications ④		Idle speed regulation Setting point		Idle speed regulation Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	10,9 4,0 950	750-755 776-789 0 - 1,0	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation At 750-755 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
700	195,0-197,0 (192,0-200,0)	-	-	-	-	-

Checking values in brackets

11.84

K12

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Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MAN 14,5 a
1. Edition

En

PE 8 P 110 A 320 LS 851 RQ 250/1150 PA 688
Komb.-Nr. 0 401 848 082
1-8-7-2-6-3-5-4 je 45° ± 0,5° (± 0,75°)

supersedes
company MAN
engine D 2848 T
245 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,0-3,1 (2,95-3,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	10,8+0,1	14,3-14,5	0,4(0,75)			
250	4,9-5,1	1,8-2,4	0,45(0,75)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Checking of slider PRG check ① rev/min 1	Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3	Control rod travel mm 4	Test specifications ④ Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7	Control rod travel mm 8	Test specifications ⑤ rev/min 9	Control rod travel mm 10	Torque control ③ rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	9,8	1195-1210	250	5,0	100	min.6,5	1150	10,8-10,9
VH =	max. 40°			4,0	1280-1310			250	4,9-5,1	700	10,8-11,0
				1450	0-1,0			310-350	= 2,0		

Torque-control travel on flyweight assembly dimension a = 0 mm

Speed regulation: At 1195-1210 min⁻¹ — 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F) rev/min 1	cm³/-1000 strokes 2	Control rod stop ③a rev/min 3	Fuel delivery characteristics ③b rev/min 4	cm³/-1000 strokes 5	Starting fuel delivery Idle speed ⑥ rev/min 6	cm³/1000 strokes / Control rod travel mm 7
LDA 1150	1,0 bar 143,0-145,0 (140,5-147,5)	-	LDA 700	1,0 bar 140,0-144,0 (137,0-147,0)	100	185,0-205,0 (181,0-209,0)
			LDA 500	0 bar 108,0-110,0 (105,5-112,5)	250	18,0-24,0 (15,5-26,5)

Checking values in brackets

12.84

K13

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE8P..LS851 + RQ..PA688	1,0		10,8-10,9
		0	9,7-9,8
		0,29	10,5-10,6
		0,23	9,9-10,1

Notes

(1) when n rev/min and gauge pressure = bar (maximum full load control rod travel)

(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 CAT 7,0 b
1. Edition

En

PES 4 P 80 A 720 LS 852 RQV 350-1000 PA 609-1
Komb.-Nr. 9 400 087 301

supersedes –
company Caterpillar
engine 3304 T
107 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 1,65-1,75 (1,60-1,80) mm (from BDC): RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	12,2+0,1	10,7-10,8	0,25 (0,35)			
350	6,7-6,9	1,0-1,7	0,2 (0,3)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1010	15,2-17,8	-	-	-	ca. 17	100	min. 11,5		
ca. 68	10,2	1030-1040					350	6,3-6,6		
	4,0	1110-1140					530-590 = 2,0			
	1200	0-1,0				(3a)				

Torque control travel a = 1,0 mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1000	106,5-107,5 (105,0-109,0)	1030-1040*	700	113,0-115,0 (111,0-117,0)	100	17,6-18,6 mm RW	1000	12,2+0,1
			500	109,0-112,0 (107,0-113,0)			850	12,7+0,2
							700	13,1+0,6
							500	13,2+0,1

Checking values in brackets

* 1 mm less control rod travel than col 2

12.84

K15

KAS

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 11,0 m 1
4. Edition

En

Testoil-ISO 4113

PE 6 P 110 A 720 RS3006 RQV 200-1100 PA283KR

supersedes 3.84
company Scania
engine DS 11

Please note instructions on sheet 2.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,30-3,40 (3,25-3,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1100	14,0+0,1	17,7 - 17,9	0,6(0,8)			2,5 ± 0,1 ** (max. 2,2-2,9)
225	6,7-5,9	0,9 - 1,3	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min ①a ②a 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm ④ 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm ③ 9	Sliding sleeve travel ① rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca. 11	100	min.7,4	300	2,0-2,8
							225	5,7-5,9	800	5,2-5,6
ca. 63	12,9	1140-1150					335-395	= 2,0	1150	8,3
	4,0	1270-1300					650	0 - 1		
	1400	0 - 1,0				③a				

Torque control travel a = mm Sp. 10-11 -

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) ② rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed ②b ④a rev/min 3	Fuel delivery characteristics high idle speed ⑤a ⑤b rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point ⑥ rev/min 6	cm³/1000 strokes 7	Torque-control travel ⑤ rev/min 8	Control rod travel mm 9
LDA 1100	0,7 bar 177,0-179,0 (174,0-182,0)	1140-1150*	LDA 850	0,7 bar 154,0-160,0 (151,0-163,0)	100	190 - 240	1100	13,9
							850	13,0
					225	9 - 13 **	600	13,2
			LDA 500	0 bar 133,0-137,0 (130,0-140,0)	RW 6:	26,5-36,5 *** Streug. max.4 (6)		
								./.

Checking values in brackets

* 1 mm less control rod travel than col 2

12.84

K16

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D. Adjustment Test for Manifold Pressure Compensator

Test at n 850 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure – bar	Measurement Gauge pressure – bar	Control rod travel XXXXXX diminution / XXXXXXXX difference mm (1)
3006 mit 283KR	0,40		12,8 - 12,9
		0,25	11,9 - 12,0
		1,0	14,0 - 14,1
		0	11,8 - 11,9

Notes XXXXXXXX
(1) when n XXXXXXXXXXXXXXXX rev/min and XXXXXXXXXXXXXX gauge pressure bar (= maximum full-load control rod travel) XXXXXXXXXXXXXXXXXXXX

Notes:

1. Start-of-delivery test without, fuel delivery test with Robo diaphragm.

2. After full-load setting, set stop screw in manifold-pressure compensator housing to 0.5 mm control-rod travel more than full-load control-rod travel.

3. Additional start test: At n = 0 min^{-1} and with control lever vertical, operate start knob = 20 - 21 mm control-rod travel must be reached.

4. ** In case of large scatter, correspondingly change preload of valve spring.

5. High idle ***: Raise engine speed until control-rod travel of 6 mm is reached and measure scatter.

TEX/Pu

K17

Y/13

En

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 SCA 14,0 c 1
6. Edition

En

PE 8 P 110 A 920/4 LS 3020 RQV 250-1000 PA 306-2 R

supersedes 6.83
company Saab-Scania
engine DS 14 01

Komb.-Nr. 0 401 848 717

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je 45° ± 0,5° (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3 - 3,4 (3,25-3,45) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1000	13,5+0,1	16,3 - 16,5	0,6(0,8)			3,3 ± 0,1
225	4,4-4,6	1,5 - 1,9	0,2(0,4)			(3,0 - 3,5)

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1000	15,2-17,8	-	-	-	ca. 10	100	min. 5,9	200	1,0-1,2
ca. 61	12,5	1040-1050					250	4,4-4,6	470	3,4-3,8
	4,0	1150-1180					350-410=2,0		730	5,1-5,3
	1300	0 - 1,0				(3a)			1000	7,7

Torque control travel a ~ - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a) rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1000	0,7 bar 163,0-165,0 (161,0-167,0)	1040-1050*	LDA 600	0,7 bar 165,5-170,5 (163,0-173,0)	100	240,0-290,0 = 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 127,0-131,0 (125,0-133,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

12.84

K18

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 8 P..LS 3020 + RQV..PA 306-2 R	0,70		13,5 - 13,6
		0	12,0 - 12,1
		0,45	13,1 - 13,2
		0,32	12,2 - 12,4

SCA 11,0 y 1

Notes

(1) when n = rev/min and gauge pressure = bar (maximum full-load control rod travel)

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 16.4.1984
- Start of fuel delivery-engine: 20° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 Vol.12,0c

7. Edition

En

Testoil-ISO 4113

PE 6 P 120 A 320 RS 3032 RQV 250-1100PA355/2R

superseded 7.83

company Volvo

engine TD 120 C

Komb.-Nr. 0 401 846 707

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 0 67

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,60-2,70 (2,55-2,75) mm (from BDC) Zyl. 6

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery 3032 cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery 3032Y cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,0-12,1	20,9 - 21,1	0,4(0,8)			2,5± 0,1**
250	5,3-5,5	0,9 - 1,3	0,3(0,6)			(max.2,2-2,9)

Adjust the fuel delivery from each outlet according to the values in ☐

** In case valve-spring spread is higher, change the initial tension accordingly.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1100	15,2-17,8	-	-	-	ca.10	100	mind.6,8	350	1,4-2,0
ca. 45	11,0	1140-1150					250	5,3-5,5	650	3,7-4,0
	4,0	1225-1255					300-360=2,0		1170	8,3
	1320	0 - 1,0				(3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation (2b) intermediate speed (4a): rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 209,0-211,0 (206,0-214,0)	1140-1150*	LDA 700	0 bar 137,0-141,0 (135,0-145,0)	100	410,0-460,0	-	-
					250	9 - 13 ** Streuung max.3(6)		

Checking values in brackets

* 1 mm less control rod travel than col 2

12.84

K20

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D. Adjustment Test for Manifold Pressure Compensator

Test at n 500 rev/min decreasing / increasing XXXXXXX pressure - in bar gauge pressure

Pump/governor	Setting	Measurement	Control rod travel diminution difference
	Gauge pressure - bar	Gauge pressure - bar	mm (1)
3032 + 355/2R	0,90		12,0 - 12,1
		0,55	11,4 - 11,5
		0,14	9,2 - 9,4
		0	9,1 - 9,2

Notes

(1) when n - rev/min and gauge pressure - bar (- maximum full-load control rod travel)

K21

K2A

En

(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 SCA 8,0 h
6. Edition

En

PE 6 P 110 A 720 RS 3034 RQV 200-1200 PA 529

Komb.-Nr. 0 401 846 732

superseded 7.84
company Scania
engine DSI 801

Testoil-ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3 - 3,4 (3,25-3,45) mm (from BDC) = RW 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	12,9 - 13,1	0,5(0,7)			2,5 ± 0,1
225	5,5-5,7	1,2 - 1,6	0,2(0,4)			(2,2 - 2,9) **

Adjust the fuel delivery from each outlet according to the values in [ ]

** In case valve-spring spread is higher, change the initial tension accordingly.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 14	100	min.7,0	150	0,5-0,8
							225	5,5-5,7	500	3,7-4,3
ca. 64	12,2	1240-1250							850	6,2-6,4
	4,0	1395-1425					390-450 = 2,0			
	1550	0 - 1,0							1200	8,6
						(3a)				

Torque control travel s = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2c) rev/min (4a) 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 129,0-131,0 (127,0-133,0)	1240 - 1250*	LDA 1200	0,9 bar 133,5-138,5 (131,0-141,0)	100	190,0-240,0 = 20,0-21,0 mm RW	-	-
			LDA 500	0 bar 79,0-83,0 (77,0-85,0)				

Checking values in brackets

* 1 mm less control rod travel than col 2

12.84

K22

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D. Adjustment Test for Manifold Pressure Compensator

SCA 8,0 h

Test at n 500 rev/min decreasing/increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure bar	Measurement Gauge pressure bar	Control rod travel diminution difference mm (1)
PE 6 P..RS 3034 + RQV..PA 529	0,90		13,2 - 13,3
		0	11,3 - 11,4
		0,44	12,7 - 12,8
		0,29	11,7 - 11,9
			SCA 11,0 y 1

Notes

(1) when n rev/min and gauge pressure - bar (maximum full-load control rod travel)

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 22.8.1983
- Start of fuel delivery-engine: 17° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 SCA 11,0 r 1
6. Edition

En

PE 6 P 110 A 720 RS 3040 RQ 250/1100 PA 411 R
Komb.-Nr. 0 401 846 717

supersedes 3.84
company Scania
engine DS 11 01

Test oil ISO 4113

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3 -3,4 (3,25-3,45) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	13,0+0,1	16,1-16,3	0,6(0,8)			3,3± 0,1
225	4,4-4,6	1,7- 2,1	0,2(0,4)			(3,0- 3,5)

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
700	15,6-16,4	700	16,0	12,0 4,0 1350	1145-1160 1230-1260 0-1,0	225	4,5	100 225 300-340	min. 5,9 4,4-4,6 =2,0	-	-

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 1145-1160min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
LDA 600	0,9 bar 161,0-163,0 (159,0-165,0)	-	LDA 1100 LDA 500	0,9 bar 153,5-158,5 (151,0-161,0) 0 bar 128,0-132,0 (126,0-134,0)	100	240,0-290,0 =20,0- 21,0 mm RW

Checking values in brackets

1.85

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L1

D. Adjustment Test for Manifold Pressure Compensator

Test at n 500 rev/min decreasing/increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution difference mm (1)
PE 6 P .. RS 3040 +RQ.. PA 411 R	0,90		13,0-13,1
		0	11,7-11,8
		0,37	12,7-12,8
		0,25	11,8-12,0

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

SCA 11,0 y 1

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 29.8.1984
- Start of fuel delivery-engine: 20° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Test Specifications Fuel Injection Pumps and Governors (1A)

40

WPP 001/4 SCA 11,0 r 4
6. Edition

En

PE 6 P 110 A 720 RS 3040 RSV 350-1100 P1/481
Komb.-Nr. 0 401 876 720
Please note instructions on sheet 2.

supersedes 3.84
company Scania
engine DS 11 05
Case

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3-3,4 (3,25-3,45) mm (from BDC) = RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
1100	13,1+0,1	15,6-15,8	0,6(0,8)			3,3 ± 0,1 (3,0 - 3,5)
350	4,4-4,6	1,8-2,2	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control-lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0	-	-	-	ca.30	350	4,0	-	-
	x =	2,75								
ca. 66 (2a)	12,1	1140-1150					350	4,4-4,6		
	4,0	1210-1240					440-500	= 2,0		
	1350	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat Note changed to) rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
1100	156,0-158,0 (154,0-160,0)	1140-1150*	700	156,5-161,5 (154,0-164,0)	100	240,0-290,0 = RW 20,0-21,0 mm	-	-
					350	18,0-22,0		

Checking values in brackets

* 1 mm less control rod travel than col 2

1.85

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L3

L3

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 29.8.1984
- Start of fuel delivery-engine: 20° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 SCA 11,0 r6
3. Edition

En

PE 6 P 110 A 720 RS 3040 ROV 200-1000 PA 555-1
Komb.-Nr. 0 401 846 763

supersedes 83
company Scania
engine DS 11

Testing 21-13

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3-3,4 (3,25-3,45) mm (from BDC)= RW 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,6+0,	16,8-17,0	0,6 (0,8)			3,3±0,1 (3,0-3,5)
225	4,4-4,6	1,7-2,1	0,2(0,4)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1050	15,2-17,8	-	-	-	ca.10	100	min. 5,9	150	0,5-0,8
									430	3,1-3,6
ca. 60	12,6	1040-1050					225	4,4-4,6	720	5,1-5,4
	4,0	1155-1185					310-370=2,0		1000	7,9
	1300	0 -1,0				(3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2) rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a) rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b) rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6) rev/min 6	cm³/1000 strokes 7	Torque-control travel (5) rev/min 8	Control rod travel mm 9
LDA 700	0,9 bar 168,0-170,0 (166,0-172,0)	1040-1050*	LDA 1000	0,9 bar 171,5-176,5 (169,0-179,0)	100	240,0-290,0 =RW 20,0-21,0 mm	-	-
			LDA 500	0 bar 133,0-137,0 (131,0-139,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.85

L5

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SCA 11,0 r 6

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution / difference mm (1)
PE 6 P.. RS 3040	0,42		13,2-13,3
+ ROV.. PA 555-1		0,90	13,6-13,7
		0	12,0-12,1
		0,29	12,3-12,5

~~SCA 11,0 y 1~~

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 29.8.1983
- Start of fuel delivery-engine: 19° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 14,6 g 1

5. Edition

PE 8 P 120 A 320 LS 3807 RQ 300/1150 PA 511-2 En

Komb.-Nr. 0 401 848 747

supersedes 1.83
company Daimler-Benz
engine OM 422 LA
276 kW (375 PS)

1 - 8 - 7 - 2 - 6 - 3 - 5 - 4 je 45° ±0,5° (±0,75°)
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke (3,95-4,15) mm (from BDC) Zyl. 8

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
900	11,6+0,1	18,9 - 19,1	0,5(0,9)			
300	4,8-5,0	1,2 - 2,0	0,8(1,2)			
1150	-	C, Sp.1u. 2	0,75			
600	-	C, Sp.4u. 5	0,75			
500	-					

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,1 -20,8	600	19,9	10,6	1195-1210	300	4,3	100	min.6,0	-	-
VH = max. 46°				4,0	1250-1280			300	4,2-4,4		
								335-375	=2,0		

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 1195 - 1210 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel cm³/1000 strokes / mm 7
LDA 900	0,7 bar 189,0 - 191,0 (186,0 - 194,0)	-	LDA 600	0,7 bar 182,0 - 186,0 (179,0 - 189,0)	100	140,0 - 160,0 (136,0-164,0)
LDA 1150	0,7 bar 185,0-189,0 (182,0-192,0)		LDA 500	0 bar 139,0-141,0 (136,0-144,0)		

Checking values in brackets

9.83

L7

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel diminution / difference mm (1)
PE 8 P..LS 3807 + RQ..PA 511-2	0,44		11,1 - 11,3
		0,70	11,6 - 11,7
		0	10,1 - 10,2
		0,34	10,3 - 10,4

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 MB 21,9 b 1
3. Edition
En

PE 12 P 120 A 320 LS 3819-2 RQV 350-1050 PA 493

1 - 5 - 9 - 8 - 3 - 4 - 11-10 - 2 - 6 - 7 - 12
0 -15 -60 -75-120-135-180-195-240-255-300-315° ±0,5(±0,75)
Values only apply to test nozzle-and-holder assembly
1 688 901 019 and fuel-injection test tubing 1 680 750 067.

supersedes 10.83
company: Daimler-Benz
engine OM 424 A
357 kW (485PS)

Komb.-Nr.
0 401 840 711

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Testoil-ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke 4,00-4,10 (3,95-4,15) mm (from BDC) cyl.12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1050	10,2+0,1	15,1-15,3	0,5(0,8)			
350	4,6-4,8	1,2- 1,8	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in ☐.

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm (1a) rev/min (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1180	15,2-17,8	-	-	-	ca.10	100	min.6,2	300	0,9-1,1
ca.56	9,2	1085-1095					350	4,6-4,8	550	3,4-3,6
	4,0	1165-1195							800	4,7-4,9
	1350	0 - 1,0							1050	6,8
						360-500 (3a)				

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed (2b) limitation intermediate speed (4a) rev/min 3	Fuel delivery characteristics (5a) high idle speed (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control (5) travel: rev/min 8	Control rod travel mm 9
LDA 1050	0,6 bar 151,0-153,0 (148,0-156,0)	1080-1090*	LDA 1050 **	0,6 bar 120,0-123,0 (117,0-126,0)	100	140,0-160,0 (136,0-164,0)	-	-
			LDA 500	0 bar 128,0-130,0 (125,0-133,0)				

** Set at the reduced-delivery stop.

Checking values in brackets

* 1 mm less control rod travel than col. 2

12.84

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D. Adjustment Test for Manifold Pressure Compensator

Test at n 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution / difference mm (1)
DE 12 P..LS3819-2 +ROV..PA 493	0,28		9,9-10,0
		0,60	10,2-10,3
		0	9,5-9,6
		0,24	9,6-9,8

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 21,9 a 5
1. Edition

En

PE 12 P 120 A 320 LS 3819-10 RQ 750 PA 635-2
1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

supersedes–
company Daimler-Benz
engine OM 424 LA
Komb.-Nr. 0 401 840 722

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1 (3,95-4,15) mm (from BDC) Zyl. 12; RW = 9,0-12,0 mm

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	12,4+0,1	20,2-20,4	0,5(0,8)			
300	4,9-5,1	1,4-2,0	0,8(1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
-	-	-	-	11,4 4,0 840	750-755 778-791 0-1,5	-	-	-	-	-	-

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation: At 750-755 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
700	202,0-204,0 (199,0-207,0)	-	-	-	100	160,0-180,0 (156,0-184,0)

Checking values in brackets

12.84

L11

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L11

Test Specifications Fuel Injection Pumps and Governors

WPP 001/4 MB 21,9 e 2
1. Edition
En

PE 12 P 110 A 320 LS 3820-1 RQV 350-1150 PA 378-1
Komb.-Nr. 0 401 840 709
1- 5- 9- 8- 3 - 4 - 11- 10- 2 - 6 - 7 - 12
0-15-60-75-120-135-180-195-240-255-300-315° ± 0,5° (± 0,75°)

supersedes _
company Daimler-Benz
engine OM 424
309 kW

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1 (3,95-4,15) mm (from BDC) 7yl. 12

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,4+0,1	12,2-12,4	0,4(0,8)			
350	7,7-7,9	1,4-2,0	0,4(0,7)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1200	15,2-17,8	-	-	-	ca. 19	100	min.9,0	300	0,6-0,9
ca. 64	10,4	1170-1180					300	7,4-7,6	580	3,6-3,8
	4,0	1235-1265							870	5,2-5,3
	1300	0-1,0				375-485			1150	7,1
						(3a)				

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (6) Idle switching point: rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
1150	122,0-124,0 (119,0-127,0)	1170-1180*	600	96,0-100,0 (93,0-103,0)	100	130,0-140,0 (126,0-144,0)	-	-
			1150	90,0-94,0 (87,0-97,0) **				

Checking values in brackets

* 1 mm less control rod travel than col 2

** Set at the reduced-delivery stop.

12.84

L12

BOSCH
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L12

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 MB 18,3 e 2
1. Edition
En

PE 10 P 120 A 320 LS 3824-10 RQ 300/1050 PA 511-3

1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75 °)
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes
company Daimler-Benz
engine OM 423 LA
368 kW
Komb.-Nr. 0 401 849 711

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1 (3,95-4,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
1150	11,7+0,1	18,3-18,5	0,5 (0,8			
300	5,0-5,2	1,6-2,2	0,8 (1,2)			

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
600	19,2-20,8	600	20,0	10,7	1195-1210	300	5,1	100	min.6,5	-	-
				4,0	1245-1275			300	5,0-5,2		
VH = max. 46°				1350	0 - 1,0			360-400 = 2,0			

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation at 1195-1210 min⁻¹ — 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp. 40°C (104°F)		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	Control rod travel / cm³/1000 strokes mm 7
LDA 1150	0,7 bar 183,0-185,0 (180,0-188,0)	-	LDA 750	0,7 bar 186,0-192,0 (183,0-195,0)	100	150,0-170,0 (146,0-174,0)
			LDA 500	0 bar 138,0-141,0 (135,0-144,0)		

Checking values in brackets

11.84

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure = in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure bar	Control rod travel = diminution / difference mm (1)
PE10P..LS3824-10 + RQ.. PA 511-3	0,70		11,7-11,8
		0	10,0-10,2
		0,39	10,4-10,6
		0,52	11,4-11,5

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

(1)

Test Specifications Fuel Injection Pumps (1) and Governors

WPP 001/4 MB 18,3 e 1

1. Edition

En

PE 10 P 120 A 320 LS 3824-10 RQV 300-1150 PA 724
1- 8- 7- 6- 3 - 5 - 2 - 10- 9 - 4
0-27-72-99-144-171-216-243-288-315° ± 0,5° (± 0,75°)
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 067

supersedes
company Daimler-Benz
engine OM 423 LA
368 kW
Komb.-Nr. 0401849710

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 4,0-4,1 (3,95-4,15) mm (from BDC) Zyl. 10

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (tr ie-control valve) mm 6
1150	11,7+0,1	18,3-18,5	0,5 (0,8)			
300	5,0-5,2	1,6-2,2	0,8 (1,2)			
750	-	C, Sp. 4 u. 5	0,8 (1,2)			
500	-					

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min Control rod travel mm 2	Control rod travel mm rev/min (1a) (2a) 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm (4) 6	Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm (3) 9	Sliding sleeve travel (1) rev/min 10	mm 11
max.	1150	15,2-17,8	-	-	-	ca. 20	100	min.6,3	300	1,0-1,2
ca. 54	10,7	1190-1200					300	4,8-5,0	500	4,0-4,5
	4,0	1245-1275							700	5,3-5,8
	1300	0 - 1,5				300-400 (3a)			1100	7,6

Torque control travel a = - mm

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2): rev/min 1	cm³/1000 strokes 2	Rotational-speed limitation intermediate speed (2b) (4a): rev/min 3	Fuel delivery characteristics high idle speed (5a) (5b): rev/min 4	cm³/1000 strokes 5	Starting fuel delivery idle switching point (6): rev/min 6	cm³/1000 strokes 7	Torque-control travel (5): rev/min 8	Control rod travel mm 9
LDA 1150	0,7 bar 183,0-185,0 (180,0-188,0)	1190-1200*	LDA 750	0,7 bar 186,0-192,0 (183,0-195,0)	100	150,0-170,0 (146,0-174,0)	-	-
			LDA 500	0 bar 138,0-140,0 (135,0-143,0)				

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

L15

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L15

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure – in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel = diminution / difference mm (1)
PE 10P..LS3824-10 + RQV.. PA 724	0,70		11,7-11,8
		0	10,0-10,2
		0,39	10,4-10,6
		0,52	11,2-11,3

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

L16

Ed 116

(1A)

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 SCA 11,0 u 4
5. Edition

En

PE 6 P 120 A 720 RS 7001 RSV 350-1100 P 1/481

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes 5.83
company Saab-Scania
engine DS 11 40, 41, 42
DSI11 40, 44
Komb.-Nr. 0 402 676 800

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

Test oil ISO 4113

A. Fuel Injection Pump Settings

Port closing at prestroke ab FD 141: 5,0-5,1 (4,95-5,15) mm (from BDC) bis FD 052: 4,4-4,5 mm (4,35-4,55)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	13,2+0,1	19,9 - 20,1	0,6(0,9)			3,3 ± 0,1
350	4,4-4,6	1,3 - 1,7	0,3(0,6)			(3,0 - 3,5)**

Adjust the fuel delivery from each outlet according to the values in [ ]

Due to smoothing of the sealing edge, the initial spring tension with a new delivery-valve holder must be adjusted to 2,9-3-1 mm

B. Governor Settings

Upper rated speed: Degree of deflection of control lever 1	rev/min 2	Control rod travel mm 3	Intermediate rated speed: Degree of deflection of control lever 4	rev/min 5	Control rod travel mm 6	(4) Lower rated speed: Degree of deflection of control lever 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	800	0,3 - 1,0	-	-	-	ca. 28	350	4,0	-	-
	x =	5,5								
ca.64 (5)	12,2	1090-1100					350	4,4-4,6		
	4,0	1170-1200					430-490	=2,0		
	1300	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2) Full-load stop, Test oil temp. 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat: Note changed to rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery Idle: rev/min 6	cm³/1000 strokes 7	(5a) Idle stop: rev/min 8	Control rod travel mm 9
700	199,0-201,0 (196,0-204,0)	1090-1100*	1000	193,0-201,0 (190,0-204,0)	100	240,0-290,0 = 20,0 - 21,0 mm RW	-	-

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.84

L17

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L17

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on Aug. 18. 1983
- Start of fuel delivery-engine: DS 11-17° before TDC; DSI 11-16° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 2,9 - 3,1 mm.

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4 SCA 11,0 u 7
3. Edition

En

Testoil-ISO 4113

supersedes 5.83
company Scania
engine DN 11 06, 07
Komb.-Nr. 0 402 646 80

PE 6 P 120 A 720 RS 7001 RQ 200/1000 PA 615
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ab FD 141: 5,0 - 5,1 (4,95 - 5,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
600	11,3+0,1	15,7 - 15,9	0,6(0,9)			3,3 ± 0,1
225	4,4-4,6	1,1 - 1,5	0,3(0,6)			(3,0 - 3,5) **

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

Checking of slider PRG check ① rev/min 1	Control rod travel mm 2	Full-load speed regulation Setting point rev/min 3	Control rod travel mm 4	Test specifications ④ Control rod travel mm 5	rev/min 6	Idle speed regulation Setting point rev/min 7	Control rod travel mm 8	Test specifications ⑤ rev/min 9	Control rod travel mm 10	Torque control ③ rev/min 11	Control rod travel mm 12
600	15,6-16,4	600	16,0	10,3 4,0 1200	1045-1060 1090-1120 0 - 1,0	225	4,5	100 225 300-340	min. 5,9 4,4-4,6 = 2,0	-	-

Torque-control travel on flyweight assembly dimension a = - mm

Speed regulation At 1045-1060 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever ② Test oil temp 40°C (104°F) rev/min 1	cm³/-1000 strokes 2	Control rod stop ③a rev/min 3	Fuel delivery characteristics ③b rev/min 4	cm³/-1000 strokes 5	Starting fuel delivery Idle speed ⑥ rev/min 6	cm³/1000 strokes / Control rod travel mm 7
600	157,0-159,0 (154,0-162,0)	-	1000	154,0-162,0 (152,0-164,0)	100	240,0-290,0 = 20,0-21,0 mm RW

Checking values in brackets

11.84

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SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 18.8.1983
- Start of fuel delivery-engine: 18° before TDC
- Firing sequence, engine : 1-5-3-6-2-4

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted 70 3,0 - 3,1 mm.

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 11,0 u 11

1. Edition

En

PE 6 P 120 A 720 RS 7001 RQ 200/1100 PA 713

Komb.-Nr. 0 402 646 819

Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes –
company Scania
engine DS 11 25,26

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 5,0-5,1 (4,95-5,15) mm (from BDC)

Rotational speed rev/min 1	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre-tensioning (torque-control valve) mm 6
700	11,7+0,1	16,1-16,3	0,6(0,9)			3,3±0,1
225	4,4-4,6	1,1-1,5	0,3(0,6)			(3,0-3,5) **

Adjust the fuel delivery from each outlet according to the values in [ ].

B. Governor Settings

Checking of slider PRG check ①		Full-load speed regulation Setting point		Test specifications ④		Idle speed regulation Setting point		Test specifications ⑤		Torque control ③	
rev/min 1	Control rod travel mm 2	rev/min 3	Control rod travel mm 4	Control rod travel mm 5	rev/min 6	rev/min 7	Control rod travel mm 8	rev/min 9	Control rod travel mm 10	rev/min 11	Control rod travel mm 12
1300	15,2-17,8	1300	16,5	10,7	1145-1160	225	4,5	100	min.5,9	-	-
				4,0	1250-1280			225	4,4-4,6		
				1400	0 - 1,0			300-340	=2,0		

Torque-control travel on flyweight assembly dimension a = mm

Speed regulation At 1145-1160 min⁻¹

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ②		Control rod stop ③a	Fuel delivery characteristics ③b		Starting fuel delivery Idle speed ⑥	
rev/min 1	cm³/-1000 strokes 2	rev/min 3	rev/min 4	cm³/-1000 strokes 5	rev/min 6	cm³/1000 strokes / Control rod travel mm 7
LDA 700	0,5 bar 161,0-163,0 (158,0-166,0)	-	LDA 1100	0,5 bar 163,0-171,0 (161,0-173,0)	100	240,0-290,0 =20,0-21,0 mm RW
			LDA 500	0 bar 120,0-124,0 (118,0-126,0)		

Checking values in brackets

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L2A

11.84

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing / increasing pressure - in bar gauge pressure

Pump/governor	Setting Gauge pressure = bar	Measurement Gauge pressure = bar	Control rod travel - diminution difference mm (1)
PE 6 P.. RS 7001 +RQ.. PA 713	0,50		11,7-11,8
		0	10,5-10,6
		0,28	11,4-11,5
		0,20	10,6-10,8

Notes

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

SUPPLEMENTARY INFORMATION

- Checking and adjustment without a ROBO diaphragm
- For combination with letter index see VDT-I-400/116
- For sealing, see VDT-I-400/117
- Test specifications approved by Scania on 17.5.1984
- Start of fuel delivery-engine : DS 11 25 - 15° before TDC
  DS 11 26 - 11° before TDC
- Firing sequence, engine : 1 - 5 - 3 - 6 - 2 - 4

** Due to smoothing of the sealing edge, the spring tension with a new delivery-valve holder must be adjusted to 2,9 - 3,1 mm.

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCA 14,2 c 1

1. Edition

En

PE 8 P 120 A 920/4 LS 7002 RSV 350-1100 P 1/481

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 je 45° ± 0,5° (± 0,75°)
Values only apply to test nozzle-and-holder assembly 1 688 901 019 and fuel-injection test tubing 1 680 750 015

supersedes -
company Saab-Scania-Brasilien
engine DS 14
Komb.-Nr. 9 400 087 287

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 5,0-5,1 (4,95-5,15) mm (from BDC) RW = 9,0 - 12,0 mm

Rotational speed rev/min 1	Control rod travel mm (2) 2	Fuel delivery cm³/100 strokes 3	Difference cm³/100 strokes 4	Control rod travel mm 2	Fuel delivery cm³/100 strokes 3	Spring pre tensioning (torque control valve) mm 6
700	13,2+0,1	18,7-18,9	0,6(0,9)			3,3±0,1
350	4,4-4,6	1,4-1,8	0,3(0,6)			(3,0-3,5) **
	Due to smoothing of the sealing edge, the initial spring tension with a new delivery-valve holder must be adjusted to 2,9-3-1 mm					

Adjust the fuel delivery from each outlet according to the values in ☐

B. Governor Settings

(1) Upper rated speed rev/min: Degree of deflection of control lever 1	Control rod travel mm 2	Control rod travel mm rev/min 3	Intermediate rated speed 4	5	6	(4) Lower rated speed: Control lever deflection in degrees 7	rev/min 8	Control rod travel mm 9	(3) Torque control: rev/min 10	Control rod travel mm 11
lose	800	0,3-1,0	-	-	-	ca. 30	350	4,0	-	-
	x = 6,0						350	4,4-4,6		
ca. 66 (2a)	12,2	1140-1150					440-500 = 2,0			
	4,0	1210-1240								
	1370	0,3-1,7								

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

(2b) Full-load stop, Test oil temp 40°C (104°F): rev/min 1	cm³/1000 strokes 2	(6) Rotational-speed limitat. Note changed to rev/min 3	(3a) Fuel delivery characteristics: rev/min 4	cm³/1000 strokes 5	Starting fuel delivery (5) Idle: rev/min 6	cm³/1000 strokes 7	(4a) Idle stop: rev/min 8	Control rod travel mm 9
700	187,0-189,0 (184,0-192,0)	1140-1150*	1000	183,0-191,0 (182,0-193,0)	100	240,0-290,0 - =20,0-21,0 mm RW	-	-
					350	14,0-18,0		

Checking values in brackets

* 1 mm less control rod travel than col 2

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